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A Presidential Address
ON
THE RELATION OF MEDICINE TO THE ANCILLARY SCIENCES.

Delivered before the Medical Society of London on Oct. 11th, 1909,

BY SAMUEL WEST, M.D. OXON., F.R.C.P. LOND.,
PHYSICIAN TO, AND LECTURER ON MEDICINE AT, ST. BARTHOLOMEW'S HOSPITAL.

GENTLEMEN,—To be called upon to preside over a society so old and honourable as the Medical Society of London is a distinction I greatly prize. I am proud to think that my name will be inscribed on the walls of the room in the long list of eminent men who have occupied this chair. I trust that I shall be equal to the responsibilities you have placed upon my shoulders and that with your coöperation during my year of office the traditions of the society will be worthily maintained.

It is the custom for the new President to deliver an address before proceeding with the business of the session and I shall follow the custom by expressing a few thoughts which have come into my mind.

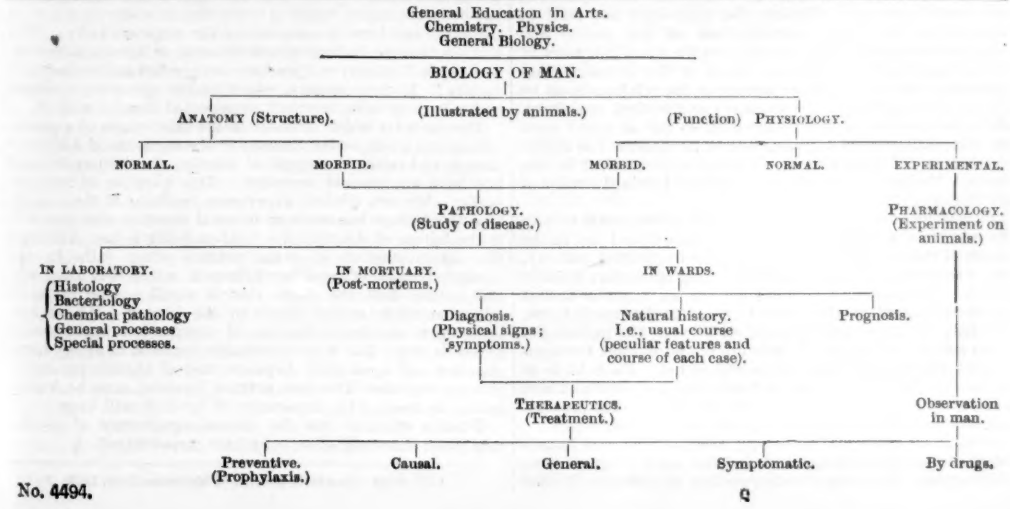
I have drawn up a synoptical table which is intended to show the Relation of Medicine to the Ancillary Sciences. Incidentally it represents also the medical curriculum of the present day and upon this aspect of it I will make a few observations before passing to other matters. Such a synopsis shows what a highly specialised product the modern doctor is. After reaching a certain standard of school education the student commences his professional curriculum with chemistry, physics, and general biology. He then begins his more technical work—the biology of man—with normal anatomy and physiology. This completes the first part of his professional work. From the normal he passes to morbid anatomy and morbid physiology, which together form the subject of pathology. From the laboratories he now goes to the wards where he is to study the diagnosis, natural history, and prognosis of disease. This done, he should be ready for the study of the means of prevention and cure of disease. What a long and varied training!

How can all this work be compressed within the five short years of student life? Only it is clear by so arranging and mapping out the time that the student may not waste a moment, for he has not one to spare. His whole time is spent in rushing from one subject to another, from one place to another, as he is directed by his teachers, with hardly time to think, and certainly without leisure to digest and properly assimilate what he has been taught. Even then five years is all too short and many students require longer even for the pass examination.

With such a hurry-scurry, with so much to do and so little time to do it in, the medical teaching of the present day is, and must be, an organised system of cramming. Cramming is not education. It strains the memory and does not stimulate the power of thinking. Real education is a process of growth and development for which time is essential. Any system of education must be bad in principle which does not recognise this fact and which demands more than can be really acquired in the time given. Hurried growth is unsound growth. To cram is not to learn. Stuffing may make Strasburg geese: *pâté de foie gras* has a commercial value, but a fatty liver is a disease even in a goose. To be always fed with predigested pap injures the vigour of any animal. The medical student of to-day is largely spoon-fed. If he remembered all he had been stuffed with he would be a monstrosity fit only for a museum. If it were not for his natural robustness of body and mind, his general common sense, his hard work, and the splendid powers of forgetting, which he shares with other men, the curriculum would ruin his mental constitution.

After all, the end and aim of all this work is to make the student a practical doctor, an object which too often seems to be lost sight of in the controversies of rival educationalists. So much time is spent in preparing the student to be a doctor that there is little or none left to make him one. In other words, so much time is spent upon preliminaries that the practical clinical work is scamped. The result must be a less finished and complete article than such a curriculum would seem to promise. As an examiner in different licensing bodies now for many years I have come to the conclusion, which I regret but think it my duty to state, that the general standard of clinical knowledge in the final examinations has been steadily and progressively falling. It is only after the student has added to all his preparatory work some clinical experience that the result of all this preparation becomes manifest. If each student could add to his curriculum a year of residence in a hospital as a house officer, without any examination to work for, he would obtain what is lacking. Where the student is so circumstanced that this is possible a good article is produced, better than has been produced hitherto, for there is no doubt that the general standard of efficiency among medical men in practice has risen greatly of recent years. But all cannot have the advantage of hospital experience of this kind, even if they can afford the time and money. Instead of gaining practical experience in the wards while they are students, when mistakes do no

Synoptical Table, showing the Relation of the Ancillary Sciences to Medicine.



harm and can be corrected, they have to learn it later in practice where mistakes are serious to themselves and to their patients.

What, then, is the remedy? Obviously to cut down the curriculum until the work required is not more than can be accomplished by the average man in the time allotted to it. Each preliminary subject must be pruned, and all that is not essential ruthlessly cut out. I am glad to think that the most experienced teachers are of this opinion, so that there is some hope of a satisfactory solution being reached at last. The present muddle, for a muddle it is, has largely arisen from the want of that control which medicine should exercise over the whole curriculum, preparatory as well as professional. The object is to make a man a doctor, and the doctors themselves are the best judges of what is necessary for that purpose. At present the teachers in each preliminary subject have been allowed to prescribe what they consider necessary for an elementary knowledge of the subject; each has added a little to the mass until the total burden is too great for any but the strongest shoulders to carry. The burden must be lightened. The work in each part must be strictly defined. This is the use of a syllabus, not so much as a guide to the student, but as an indication to the teacher and a check upon the examiner. The relative value of the different parts of the work must be defined. The perspective of the medical curriculum has been lost. It can only be regained by medicine resuming the control over the whole medical curriculum, preparatory as well as professional. This control it has in theory, but not in practice. The time has now come when in the interests of medicine and of the students that control must be resumed and effectively exercised.

My object in drawing out this synoptical table, however, was not to hold a tirade against the present system of medical education. It was quite a different one. I wished to show the position which medicine holds in relation to the ancillary sciences, and which in the face of the aggressive enthusiasm of some of the younger specialties is liable to be lost sight of.

Medicine, as the table shows, consists of Pathology, or the Science of disease, and of Therapeutics, or the Treatment of disease.

Pathology may be studied in the laboratory by the pathologist, so-called, or in the wards by the physician or clinician. Their objects are the same. They each investigate the problems of disease; their difference is not one of subject or of method, but only of place of study. The pathologist has the advantage that he can determine beforehand the investigation he wishes to make, can invent his own experiments, which he can perform at his own time and in his own way—chiefly, of course, upon animals and in his laboratory. The clinician studies morbid man and not animals, cannot select his own experiments, but must take them as they come and when they come, and the clinician's workshop is the ward. Clinical investigation in the wards is as much a science as pathological investigation in the laboratory. The same faculties are required in both pathologist and clinician, the same care and skill in observation, the same scientific use of the reason and imagination to create his theories, and the same judgment in putting his theories to the test. Each is the necessary complement of the other. The theories of the clinician must be taken to the pathological laboratory and worked out there, while the theories of the pathologist, so far as based upon the observations upon animals, cannot be accepted as applying to man till they have been tested and checked in the wards. Medical science is not confined within the walls of the laboratory.

To assume an antagonism, which, if it exists, exists only in the mind and attitude of rival practitioners, and not in the nature of things, can only retard science by exciting jealousy, where there should at the most be nothing more than friendly rivalry. The problems of medicine can no more be worked out in the laboratory alone than they can in the wards alone. It is only by the closest coöperation between the pathologist in his laboratory and the clinician in his wards that the complicated problems of medicine can be solved. Each looks at the subject from a somewhat different point of view and sees it therefore in new lights, and every new aspect of a problem suggests new methods of dealing with its solution.

Clinical medicine and pathology, then, are but two departments of the same science and are the complement the one of the other. For a right understanding of medicine it must be studied in both places alike, and the clinician is as necessary as the pathologist.

The relation of medicine to normal physiology is equally close. Physiology is the child of medicine, for it was the study of the morbid that showed the necessity of a knowledge of the normal. Now for the convenience of education the study of the normal rightly precedes that of the morbid—so it comes that medicine is sometimes regarded as applied physiology—but it is of course far more than this. Much as medicine receives from physiology, it amply repays the debt it owes by testing and confirming the statements of physiology, and by suggesting and carrying out new lines of research and investigation. I do not propose to refer to the gifts of physiology to medicine, but rather to speak of some of the contributions of clinical medicine to physiology.

I suppose no physiologist would dispute the debt that physiology owes to clinical medicine in the investigation of the functions of the nervous system. The localisation of function in the brain was largely based upon the observations of clinical observers, among whom Hughlings Jackson, a former President of this society, holds the place of honour. Confirmed and extended in the laboratory, the conclusions he drew from observation in the wards form the basis of our present knowledge.

A great deal of our knowledge, too, of the functions of the spinal cord is due to the patient observation of clinical facts and their association with results of post-mortem examination. Though laboratory experiments have done so much to confirm this work, still they are coarse and clumsy compared with those experiments which Nature performs in disease.

Clinical observations led Hughlings Jackson some years ago to a theory of the respiratory mechanism which, though correct as I take it to be, has not yet found its way, I believe, into the physiological text-books. It is this, that in the nervous mechanism of respiration there is a voluntary or cerebral innervation as well as an automatic spinal centre, and that these are to a great extent independent of one another. The clinical facts upon which this theory rests are that in hemiplegia while the automatic or ordinary movements of respiration remain equal on the two sides, or may be possibly even exaggerated on the paralysed side, the voluntary movements of the paralysed side are markedly impaired.[1]

The function of the thyroid gland was little understood until the discovery of myxœdema as a disease, and its association with the thyroid gland determined. The cure of this condition by the administration of thyroid extract not only showed the importance of the thyroid gland to the body, but threw a new light on the whole question of internal secretion.

The study of Addison's disease, again, has shown one at any rate of the functions of the suprarenal gland, though treatment by suprarenal extract has proved disappointing.

The function of the pituitary body was, and I suppose still is, unknown, but the association of acromegaly with disease of it has given fresh interest to its study.

These are surprising and unexpected associations, and they act as a warning against the assumption that those parts of the body the use of which is not at the time known are of no use at all and form fit material for the surgeon's knife. Who can say that the indiscriminate removal of tonsils, adenoids, and appendices may not produce unexpected and undesirable results? Modern surgery, which makes operation so simple and safe, may bring new and unsuspected dangers with it.

The cachexia which develops in the later stages of granular kidney has a suggestive likeness to the cachexia of Addison's disease and raises the question whether the kidney too may not have an internal secretion. This question is still *sub judice*. My own clinical experience leads me to the opinion that the kidney has such an internal secretion and that it is to the failure of this that the renal cachexia is due. Although the administration of renal extract often fails in the advanced cases of granular kidney in which it is used, still the failure does not prove that it would not be useful if administered in earlier stages of the disease. I have had some very striking instances of unexpected improvement under its use. The most remarkable occurred in a very long-standing and apparently hopeless case of chronic parenchymatous nephritis. The renal extract, however, must be freshly made, for there is no preparation of it which will keep.

What a stimulus has the clinical significance of glycosuria given the study of carbohydrate metabolism!

[1] Cf. West: Quarterly Journal of Medicine, July, 1908.

In the physiology of the blood the recent additions to our knowledge come almost entirely from clinical sources. With malaria and kindred affections we seem now to be wandering in a wonderland where the waving of the fairy wand of science banishes the demon of disease and converts a charnel-house into a paradise.

A new field of physiological research has been opened out in respect of the heart by the recent study of the bundle of His and the clinical observations upon the phenomena included under the term "heart-block."

But even among the common things of the heart there are some which, clinical observation suggests, require reconsideration.

To take, for example, the sounds of the heart. We are taught that the second sound of the heart is due to the closure of the aortic and pulmonary valves, and that the second sound at the apex is merely the second sound at the base transmitted to the apex. If this were the whole truth there ought to be a definite and constant relation between the intensity of the second sound at the base and that at the apex. But clinical observation shows that this is not the case, for the second sound may be loud at the base and absent at the apex or be heard loudly at the apex and be feeble or even absent at the base, so that there is no constant relation between them. In mitral stenosis the second sound is often completely absent at the apex and yet audible distinctly at the aortic base and loudly accentuated at the pulmonary base. Clinical observation thus leads to the conclusion that the cause of the second sound is not the same at the apex as at the base. Inasmuch as the chief effect of mitral stenosis is to prevent the blood passing readily into the ventricle from the auricle, so that it can only trickle through instead of running, as it does in a healthy heart, in a free and unimpeded stream, we may suppose that it is the impact of the blood upon the wall of the ventricle as it passes from the distended auricle at the commencement of the ventricular diastole which produces the second sound at the apex in health. Whether this explanation be satisfactory or not it is the only one I can think of. Some explanation is required, and the question is obviously of great physiological importance.

The length or duration of the heart sounds is another question of importance in clinical medicine, for upon it depends a right understanding of cardiac murmurs. The second sound is short but the first is long. To hear the heart-sounds as clearly as we do there must obviously be distinct intervals of some duration between them. These intervals may be occupied by an abnormal noise which is called a murmur. Yet murmurs are often described as replacing the heart sounds. In the case of the second sound diastolic murmurs always do more than this, for they last much longer, even it may be throughout the whole diastolic period. The question, then, of the length of the heart sounds is only of real importance in relation to the first sound. The difference of teaching is shown by the different diagrams given of the first sound. It is often represented as if extending through the whole of the systolic period, yet clinical observation shows that it does not really extend more than half way, for there are many cases at the bedside in which the sounds appear perfectly normal to the ear and yet there is in addition a systolic murmur equal in duration to that of the first sound. If the first sound lasted through the whole of systole no definite distinction could be drawn between an altered heart-sound and a murmur, as must be done if a correct diagnosis of cardiac lesions is to be made. This difference of opinion will, I suppose, continue till some means is found by which the heart sounds can be measured and made to record graphically their own duration. The only observations I know which bear on this point are those of Einthoven and Geluk.[2] Their results support my views.

Another piece of physiological teaching which I cannot reconcile with clinical observation is that of the sphincter action of the cardiac muscle at the mitral and tricuspid orifices. According to this theory the mitral and tricuspid valves are not competent to close the orifice unless they be first contracted by the sphincter action of the heart muscle. *A priori* it would seem incredible that so important an organ as the heart should have such a narrow margin of reserve that mere muscular weakness should render the pump ineffective. *A priori* reasoning is risky. In my mind the question is settled by the following considerations: (1) That if the valves were incompetent a regurgitant murmur would be the result; (2) that with organic disease which leads to regurgitation the murmurs are propagated in definite directions; and (3) that the murmurs are not so propagated in the great majority of cases when they are associated with simple cardiac weakness. If the murmurs constantly vary in so marked a way the cause of them can hardly be the same. So this sphincter-action requires reconsideration and the experiments upon which the theory rests call for repetition.

The last question I would raise in connexion with the heart is the problem of its nutrition. We are taught that this depends upon the coronary arteries alone. We were once told that the coronary arteries did not anastomose and that each was independent. But as I showed many years ago, the anastomosis is extremely free and nothing is easier with proper care than to inject nearly the whole heart from either vessel.

The question I would now raise is whether in fact the coronary arteries are indeed the only source of blood-supply to the heart. My doubts rest upon the fact that the mouths of the coronary arteries are often greatly constricted by atheroma without the heart suffering much in power. I have even seen the mouth of one coronary artery completely obliterated and the other so small that the finest probe could only be introduced with difficulty into it. It was quite impossible that the blood-supply of that heart could have been obtained through those obliterated coronary arteries at all. It is difficult to see what other source of supply there can be in such cases unless there be *vasa propria cordis* opening directly from the cavities of the heart itself.

I mention these points in connexion with the heart as examples of subjects of research suggested simply by clinical observation. I do not propose to pursue this subject further, but I think it will be accepted that there is no organ in the body upon the pure physiology of which clinical observation cannot throw, even if it has not already thrown, much light. So that clinical medicine is the partner, and no sleeping partner either, of pure physiology as it is of pathology.

I turn now to pharmacology and its relation to medicine. Pharmacology is a special branch of experimental physiology and deals with the physiological action of drugs or remedies. Many of the remedies selected for investigation are those which have been found of use at the bedside. Many new remedies have come from the pharmacological laboratory to the wards, and their number is rapidly increasing under the stimulus of the theory that chemical constitution is a guide to physiological action. The action of remedies upon healthy animals in the laboratory is no proof that they will have similar action upon sick men. The results of pharmacological experiments must therefore be tested in the wards before they can be accepted for use in medicine.

To call treatment based on laboratory experiment rational and scientific and that based on bedside experience empirical implies a difference which does not exist, and would seem to suggest that clinical observation is neither rational nor scientific. Yet the same care and skill in observation are required in either case and the difficulties to be surmounted are much greater in the wards than they are in the laboratory. According to this view, if a remedy were found to do good in the treatment of disease its use would be rational if a physiological explanation could be given, and it would remain under the stigma of empiricism if no physiological reason could be given, even if, as has sometimes happened, the physiological reason assigned has proved ultimately to be wrong. Yet whether the physiological explanation of its action can be given or not, it would seem to be the height of unreason to refuse to use a remedy of proved clinical value because its action could not be explained.

So, again, the treatment of symptoms is often disparaged as essentially unscientific, yet surely if you cannot cure the disease but can relieve its symptoms it would be irrational not to do so, though the reason of the relief given were not known. Symptoms are disorders of function produced by disease. A particular symptom, for example, might be due to the action of some chemical substance produced by the disease, and if this substance could be neutralised or decomposed the symptom would disappear. If it could be shown that this was actually what occurred, the discovery would be

[2] Archiv für Gesammte Physiologie, 1904, vol. lvii., p. 607.

regarded as of the highest scientific value. A fact is a fact whether it can be explained or not, and there are many such facts in symptomatic treatment. That the explanation is not forthcoming is not due to the want of science in the clinical observer, who is busy collecting such facts, but to the backward condition of physiological knowledge. The terms "rational" and "empirical" should therefore be dropped as suggesting undue assumption and unworthy disparagement.

In pharmacology as in physiology the work in the wards is the necessary complement of the laboratory. The clinician may suggest problems for the pharmacologist to tackle, the pharmacologist may supply new remedies for the clinician to try—loyal coöperation on equal terms between each is necessary for the progress of science.

Recently the bacteriologist has entered the domain of therapeutics with antitoxic sera and vaccines. Prepared as these remedies must be in special laboratories, it is only in the wards that their true value can be determined. The results are sometimes striking, but often, alas, the promises of the laboratory fail to be realised in the wards. On this subject I would raise a question—Whether the prolonged administration of these remedies over weeks and months may not produce serious effects upon the general health. I have myself observed a few cases in which a profound cachexia developed from which the patient died. The result was attributed to the disease and perhaps rightly. Yet I could not help feeling some doubt whether it was not, in part at least, the result of the prolonged use of the remedy. I have made inquiries of some practitioners of experience and find that there is an impression among them also that it may be so. I know that it is stated that these remedies do no harm and may be used indefinitely with advantage. It would be strange if remedies so powerful for good were incapable of doing harm. At any rate, the question deserves consideration.

The conclusion of the matter seems to be that it would be unwise to let the enthusiastic physiologist, bacteriologist, or pharmacologist run loose in the wards without the advice and controlling influence of the clinician, and that it would be risky both to science and to the patient.

The proper position of each of the ancillary sciences is side by side with medicine. They must all work loyally together in a common search after truth. But if one must be pre-eminent it is surely medicine, which has the right to pre-eminence as the parent of them all. To speak of the clinician or physician as obsolete, effete, or an anachronism, is midsummer madness. The clinician is as necessary to the progress of medical science in the present day as the bacteriologist, physiologist, or pharmacologist. Indeed, there never was a time, I believe, when the mature experience and cool judgment of the practised clinician was more necessary than now, to put brilliant but crude theories to the test, and in general to counteract the separatist tendencies of modern specialism.

INCORPORATED INSTITUTE OF HYGIENE.—A course of popular lectures (with practical demonstrations) on food and dietetics, cooking, home hygiene, and home nursing will be delivered in the lecture hall of the Institute of Hygiene, 34, Devonshire-street, Harley-street, W., during the coming nine months. They will comprise the following subjects: Food and Dietetics, by Dr. G. Norman Meachen, commencing on Oct. 5th; Cooking (with practical demonstrations), by Mrs. C. L. Wilson, L.L.A., commencing on Oct. 12th; Home Hygiene, by Dr. Lilian M. Chesney, commencing on Oct. 19th; and Home Nursing (with practical demonstrations), by Miss Isabel Macdonald, commencing on Oct. 26th.

TUBERCULOSIS IN THE BLACK COUNTRY.—The South Staffordshire Joint Small-Pox Hospital Board is considering a scheme for the utilisation of its small-pox hospital as a sanatorium. During the four years the hospital has existed no patient has been treated there. In the board's area there are about 1000 consumptives, with 300 deaths annually. Dr. G. Reid and Dr. W. McE. Clendinnen showed by their estimates that by charging 30*s.* per patient per week the board would effect a saving of £244 annually from the point of view of small-pox hospital maintenance. One-third of the cost would be provided by the board and two-thirds by those who made use of the institution as a sanatorium. A committee has been appointed to consider the scheme.

Introductory Address

Delivered at the Opening of the Winter Session at the University of Liverpool School of Medicine on Oct. 5th, 1909,

BY CHARLES A. BALLANCE, M.V.O.,
M.S. LOND., F.R.C.S. ENG.,
SURGEON TO ST. THOMAS'S HOSPITAL, ETC.

LADIES AND GENTLEMEN,—I esteem it a high privilege to have been invited by the Medical Faculty of the young but already famous University of Liverpool to give the introductory address at the opening of this session. Our island country owes much to the enterprise, the energy, and the courage of the inhabitants of this city. No one of us can sail the estuary of the river Mersey without a feeling of legitimate pride.

> "That stream which fretted by a thousand prows,
> No rest, no liquid slumber knows,
> Whate'er the hour, whatever winds prevail,
> Behold the outward and the homeward sail."

And stealing silently into our minds, for as a race we tend to conceal our thoughts, come the words *civis Britannicus sum*. To the ignorant it might appear that

> "Your mind is tossing on the ocean,"

and that you employ your leisure

> "Plucking the grass, to know where sits the wind,"

> "For there is a magnet-like attraction in
> These waters, to th' imaginative power,
> That links the viewless with the visible,
> And pictures things unseen. To realms beyond
> The highway of the world my fancy flies,
> When, by her tall and triple mast, we know
> Some noble voyager, that has to woo
> The trade winds, and to stem th' ecliptic surge."

Though this city is famed for its shipping and its commerce, it is also famous by reason of the literary and intellectual eminence attained by many of its citizens. I will mention only three of them: Mr. Gladstone, Mrs. Hemans, and Ian Maclaren. This is not the proper occasion to speak of Mr. Gladstone's amazing intellect, his illustrious career, and the influence of his personality on the higher ideals of life and conduct; but there is one thing about Mr. Gladstone which, whatever our political views may be, must appeal to the heart of every Briton. He devoted the whole of his life, all the eminent qualities of his mind, and all his physical strength to the rough island story of the land in which we live and which we so much love. The next name is that of Mrs. Hemans. Who, as a child, has not felt a tingling of the blood when reciting the poem descriptive of the steadfastness and heroism of the young boy Casabianca? Who has not been moved by the melody and sweetness of the lines of "The Better Land"? Who of us can now read "The Homes of England" without some feeling of uneasiness and alarm?

> "By a divine instinct men's minds mistrust
> Ensuing dangers, as by proof we see
> The waters swell before a boisterous storm."

All forbodes peace, yet we live, as a great imperial orator recently said, in an age in which the nations of Europe are engaged in silent warfare, hardly less exhausting and dangerous than open war. This "*tacens bellum*" may pass at any moment by sudden attack into a struggle for our very existence. England may say with the Psalmist, "I labour for peace, but when I speak unto them thereof, they make them ready to battle." Has not the time come "that some personal duty and responsibility for national defence rests on every man and citizen?"

> "The stately homes of England,
> How beautiful they stand,
> Amidst their tall ancestral trees,
> O'er all the pleasant land!
> . . . . .
> The cottage homes of England!
> By thousands on her plains,
> They are smiling o'er the silvery brooks,
> And round the hamlet fanes.
> Through glowing orchards forth they peep,
> Each from its nook of leaves;
> And fearless there the lowly sleep,
> As the bird beneath their eaves.
> . . . . .
> Breathes there the man, with soul so dead,
> Who never to himself has said,
> This is my own, my native land!
> . . . . .
> Oh! where's the coward that would not dare
> To fight for such a land."

I may detach a passage from Ruskin's lecture on War and say that national defence in Britain at the present time may fitly be described in the words, "Brave men fighting and her cowards thinking." Truly the thoughts of England need good captains' leading now, if ever! Unless Britain awakes from her long sleep, "Ashes to ashes" may be her epitaph, and the beautiful verses of Mrs. Hemans may remain as but a memory of the past, lost beyond recall:—

"When the lamp is shattered,
The light in the dust lies dead;
When the cloud is scattered,
The rainbow's glory is shed."

No, it shall not be—

"Nought shall make us rue,
So England to herself do rest but true.
. . . . . .
The free fair homes of England!
Long, long in hut and hall,
May hearts of native proof be reared
To guard each hallowed wall!
And green for ever be the groves,
And bright the flowery sod,
Where first the child's glad spirit loves,
Its country and its God!"

The "Name of England," the title of another poem by Mrs. Hemans—

"A thousand ancient mountains
Its pealing note has stirred,
Sound on, and on, for evermore,
O thou victorious word!
. . . . . .
England! what thou wert, thou art!
Gird thee with thine ancient might,
Forth! and God defend the Right!"

This University had its origin in the wisdom, the forethought, and the enterprise of the citizens of this city. The work already done in it gives assurance of the greatness of its future. A University does not consist alone of the stone and the bricks and mortar of which its laboratories and lecture rooms are constructed, important as these, in a sense, are. When I was in America I was introduced to Mr. Roosevelt. I opened the conversation by expressing my admiration of the new marble buildings of the Harvard University at Boston on which 5,000,000 dollars had been expended. He replied: "Yes, they are very fine, but, in the case of Universities in general, how much better it would be to spend the money, *not first* on buildings, but *first* in the endeavour to induce the wisest and greatest men of the world in the various branches of knowledge to come and fill the professorial chairs."

The real vitalising and energising element, the germinal plasm of the University, is its band of living workers. The individual members of the University pass away, but the body-corporate is endowed with continuous life, but with a life of ever-changing form. This organic body grows from year to year in strength and in knowledge. The knowledge gained by the toil of one generation soon becomes the commonplace of the next. The world moves on in a succession of dreams and their fulfilment, and the wild imaginings of one age become the splendid realities of the next.

"Yet all experience is an arch where thro'
Gleams that untravell'd world, whose margin fades
For ever and for ever when I move."

There is no halt in the beneficent activity of the living workers of the University to increase the sum of human knowledge, and in the medical faculty no rest in the effort to relieve human suffering and to cure disease. The tide in the progression of nature moves with undeviating purpose from incompleteness to completeness, from imperfection to perfection. The further evolution must go on. The succession cannot break. The day of greater knowledge will arrive when the then living workers of your medical faculty will be able perfectly to control those dread diseases which still confront and baffle us.

The extraordinary evolution and advance of physiology, pathology, medicine, and surgery, since the time when I became a student can only be dimly realised by those who have but lately joined the profession. When I entered the profession the obstacles to the study of human anatomy had been removed, and clinical observation combined with post-mortem study had greatly increased our knowledge of disease. The work of the experimental school of Pasteur and Lister had but commenced to influence practice. The surgeons made a point of operating in the oldest of coats bespattered with blood and pus from many a field-day. Intestinal and gastro-intestinal anastomosis were unknown. The reduction of intussusception was attempted by means of the kitchen bellows. The operations for brain tumour and brain abscess were unknown. No operations were performed on the heart and spleen. Patients with renal or biliary calculi, and with appendicitis or peritonitis, were left to their fate.

Much of what is now current surgical practice was when I was a student considered too hazardous to attempt or was altogether unknown. In one well-known text-book the opinion was expressed that the limit of the surgeon's art had been reached. You, on the other hand, who are about to enter the profession will have unfolded to your view quite another picture. You will find ready to hand a precise and well-proved surgical technique, beautiful aseptic operation rooms, well-equipped laboratories for research, instruments of precision, and elaborate laboratory methods of diagnosis and treatment. You will see an endless succession of major and minor operations, which concern every part and every organ of the human body, being performed successfully day by day. You will witness, and I hope will soon take part in, a constant struggle to improve our operation methods, and a continuous effort by the aid of experiment to attain "things unattempted yet" in surgical practice. Sepsis, diphtheria, typhoid fever, yellow fever, carcinoma following x ray dermatitis, and other diseases take their toll among the heroic workers who are pushing forward in the front rank of the advance of medicine and surgery. The greatest responsibility is demanded of our profession and the highest death-rate. Yet you will find the great doctors of the past, of this age, and of all the coming years "endued with comprehension and a steadfast will to look one step forwards and to secure that step. Adventuring for man's sake, apart from all reward, they seem to long at once to save mankind, to make some unexampled sacrifice in their behalf, to wring some wondrous good from heaven or earth for them, or perish, winning eternal weal in the act."

In pathology and medicine the progress too has been equally extraordinary and remarkable, especially in our knowledge of the intimate pathology of the infectious diseases and of natural and acquired immunity. To me it is an historical fact that I joined in 1884 the first class in bacteriology ever formed in the ancient University of Leipsic. During my medical life the organisms of anthrax, erysipelas, pneumonia, puerperal fever, tubercle, Malta fever, syphilis, cholera, tetanus, small-pox, diphtheria, acute rheumatism, and plague have been identified; and the successful attainment of immunity against diphtheria, typhoid fever, snake venom, rabies and other toxic poisons stands in the front rank of the greatest triumphs of the art of healing. The fascinating story of the fight against tropical diseases in which the Liverpool School has played so splendid a part I have only time to mention.

The growth of physiological knowledge is almost past belief. The physiology of the present day has passed beyond the histology and elementary lessons in the functions of organs which I was taught into the higher regions of chemistry and physics. Let me take one example. I doubt whether in 1880 there were half a dozen men in England who really believed in the great doctrine of the localisation of the functions of the brain. In the Physiological Section of the International Medical Congress held in London in 1881 there was a Homeric contest, of transcendent moment to the advancement of knowledge and vital to the interests of mankind, over the dog shown by Professor Goltz and the two monkeys exhibited by Professor Ferrier. Experimental injuries had been inflicted on the cerebral cortex of each of these animals. The condition of the dog was supposed to prove that localisation of function in the cortex cerebri did not exist. One of the monkeys was typically hemiplegic, having lost power in the arm and leg. Professor Charcot remarked as the monkey came into the room, "It is a patient." The other monkey showed no signs of hearing when a percussion cap was snapped in its immediate vicinity; indeed, it was the only animal in the room that did not jump when the explosion occurred. From that day to this, experimental work on the functions of the brain has been in progress. This field of science has been brilliantly illuminated by the epoch-making researches of Professor Sherrington. It is upon his work, and that of many other scientific labourers, that the diagnosis of the diseases of the central nervous system mainly rests. Without these experimental researches it would not have been possible or justifiable for the surgeon

to undertake, as he may with confidence and success at the present time, the removal of many of the gross diseases to which the brain and spinal cord are liable. So far-reaching is the influence of experiment on the progress of treatment that no one of us can separate himself and say physiological experiment has nothing to do with me. Till the functions of the living organs in health are clearly understood, it is not possible for us clearly to understand the changes that occur in the living organs in disease.

The world's most bitter enemies are, as Kipling has finely said, those who would limit and hamper research. It is well for us to remember that the men who are engaged in researches designed to unravel the tangled skeins of truth in the sciences of physiology, pathology, therapeutics, and surgery are following in the footsteps of Pasteur, of Lister, and of all those who have contributed most to the advancement of medical science and the relief of man's suffering.

That great Victorian, the late Sir Theodore Martin, recently expressing his views on the signs of the times asked, Where are the giants? Where are the Palmerstons, the Disraelis, the Gladstones in politics? Where are the giants in literature? Where in any walk of life are Alpine altitudes to be found? As far as our own profession is concerned there is no difficulty in answering this question. The pageant of medicine and surgery of the past 30 years has been the most glorious of all time. The names of Virchow, Helmholtz, Pasteur, Lister, Paget, Metchnikoff, and Foster, would shed a glory upon any age. The progress of medicine in the present day rests in great part on the labours of past generations. As Carlyle so well said: "The craftsmen there, the smith with that metal of his, with these tools, with these cunning methods, how little of all he does is properly his work. All past inventive men work there with him as indeed with all of us in all things." During the American Civil War one of the most famous songs of the soldiers of the North was "John Brown's body is mouldering in the dust, but his soul is marching on."

You, students of medicine of Liverpool, will perhaps have been wondering why I have chosen, briefly and all too inadequately, to sketch the glorious story of the conflict waged and the splendid victories won in recent years by the profession. My object is to stimulate your ambition, to fire your energies and to clench your resolves, to take a manly and noble part in this struggle. Soon those who are prominent now in the fight will have passed away; and in you, if you resolve earnestly to use these early days of your studentship, if you vow your life to medicine, and if you give it to her wholly, "a bright, stainless, perfect life—a knightly life," John Brown's soul will be marching on, and the years of your life will be as full of blessing to humanity as those of your teachers have been before you.

The life of the student of medicine falls naturally into three periods: (1) The time spent before he registers as a student; (2) the days of his so-called studentship; and (3) the life that dates from the day that he obtains a licence to practise. In all the learned professions such distinctions are more or less artificial. They are entirely artificial in the profession of medicine; for all who enter our profession become students for life. The licence to practise, though it does not close your studentship, does add to your responsibility as you are then commissioned to go forth alone to investigate the phenomena of nature in health and disease. The joy may soon be yours which attends the first realisation of the power of knowledge, the first successful effort to combat some pain or sickness in the body of a patient committed to your charge.

I cannot influence the first period of your lives, but I may express the hope that many of you have taken a degree in Arts before launching yourselves on a voyage destined to lead you far in many of the natural sciences. The more your intellect has been exercised in the classics, in mathematics, in philosophy, and in history, the more easily will you assimilate and delight in the facts, the laws, and the problems of those sciences to which your studies will now be mainly directed. During the strenuous years that are before you, and in the bustle and hurry of the new life you can, if you will, return to the old learning, which may be to you a grand source of relaxation and a perennial pleasure. Our profession demands, not a minimum of general knowledge but the maximum that can be obtained. In my experience the men in our profession who have had the advantage of general culture are, as a rule, abler physicians than those who have not, while those who have had only a scientific education seem sometimes to have one side only of their minds developed. If you have not already had this general education you may with industry and perseverance make up the loss, wholly or in great measure, by taking every opportunity of increasing your knowledge of literature, art, and music. Give a definite amount of your time to the study of modern languages, especially French and German, in which languages much of what is best in the medical sciences is now written. Go abroad whenever you can, widen your views of life, learn as I did in a German university laboratory the pleasure of work for the work's sake, appreciate that in science there are no national boundaries, and that not only in Liverpool and in Britain, but in every country, the great, the noble, the unselfish worker in science is to be found.

If you will pardon a reference to my own early days (and a personal note sometimes appeals to an audience more than anything else), I may tell you that I acquired an elementary acquaintance with the Latin and Greek authors, and imbibed a taste for the reading of the Bible, Bacon, Milton, Shakespeare, Spenser, Gibbon, Macaulay, Carlyle, Scott, Dickens, Tennyson, and some other English classics. The study of these alone constitutes a liberal education. I recommend you to have always at hand some volume of English literature which will be to you, as it has been to me, an ever-present source of edification and delight. I am sure it is best not to become so engrossed in the study of the medical sciences as to be insusceptible to the charm and claims of other byways of knowledge. Your life will be spent in the laboratory of the world, amongst diverse types of mankind, and to be in the best sense a successful doctor you must be not only scientific but human.

One word as to exercise. What we want in our schools and in our national life is some middle course between the German method of no play and the English one of all play. Games and amusements occupy too prominent a place in English life. I see nothing but the obligation and privilege of personal service for national defence that will wean our people, high and low, from their present condition of indiscipline, lazy indolence in amusement, and the vice of betting on every game, to the noble virtues of self-respect, unselfishness, and self-sacrifice. "Hustle, bustle, and noise—the jingling of the guinea, the thousand and one meretricious allurements of the age—have for a time dimmed the fair mirror of English life." As Baruch wrote in Babylon, so we may say in some measure of England of to-day: "The young men have seen light and dwelt upon the earth, but the way of discipline (*disciplinæ*, discipline or knowledge) have they not known, nor understood the paths thereof, nor laid hold of it; their children were far off from that way." A short time ago my car was stopped in the early evening in a suburb of London by a large crowd which collected round a building and which had blocked the whole road. I asked a policeman what was the matter. He said that the crowd consisted of the unemployed waiting to go into a music-hall. Again, it is well known that the same class can always find money to go in their thousands, not to a rifle range, but to witness a football match in some distant city.

Before sending my son to a preparatory school I visited some of the best in England, and usually the headmaster early let me into the great secret that all the assistant masters had won their blue at Oxford or Cambridge. I know of one man who telegraphed to his father from the University, "Shall I play for the University or work for my examination?" The father being an Englishman replied, "Play for the University." The son made over a century for his University, and before the match was over he received by telegram an offer of a post, not, as you will probably guess, in an English school, but as steward of a property in his own county. The father on this occasion made a wise choice, for his son had been so intoxicated by the game's madness that the elementary knowledge required for a pass B.A. was beyond his powers. Surely it ought not to be impossible to combine a little learning with cricket; to do otherwise, I would say, is not cricket, but wilful sloth and indolence. Fortunately, that man had not to turn his mind to the study of medicine, for when all is permitted to depend on the skill of one, think on the responsibility of wilful ignorance when the beam of life and death is so nearly balanced that it turns this way or that according to the more or less skill that can be cast into the scale of life. I fervently wish each of

you a century at cricket for Liverpool, but the pleasure of work done and duty fulfilled is a far greater and nobler end to strive for.

I know of another man, formerly an undergraduate at Oxford, who wrote to his father that if he remained at the University he must row for his college, and that the time spent in training would jeopardise his chance of success at the Indian Civil Service examination. The father replied, "Act as you think is right." The son made the great sacrifice. He left the University and by winning a place at the Indian Civil Service examination secured the reward of true courage.

"Judge not what is best
By pleasure, though to Nature seeming meet,
Created, as thou art, to nobler end."

Propose this test, says Browning (and I remember my colleague, the late Dr. Cullingworth, on one occasion quoted these lines):—

"The body at its best
How far can that project thy soul on its lone way."

The second stage of your life lasts from the time you sign on to the day when you receive your diploma. I do not know the causes which have determined your choice of a profession, but let me offer you a most hearty welcome. The study of medicine and the allied sciences confers on you the prospect of the exercise of all the highest and noblest qualities that man possesses; and opens out to you a vision of truth, order, and beauty, ever growing wider and wider as you learn more and more of Nature and her laws. Can any fairer landscape unfold before the gaze of any human being at the outset of his career? It is for you to seize upon Fortune. It is for you to determine the issue. It is true that "Fortune brings in some boats that are not steer'd," but as a rule "Things bad begun make strong themselves by ill." At first your time will be spent in the study of the sciences of chemistry, biology, physiology, and anatomy. Do not simply learn enough to pass an examination. While you are studying anatomy determine to become an anatomist, and so also with each science which claims your attention. It is remarkable how the knowledge gained in the first years of your student life will be of service to you in later years. Bacon and other great thinkers are unanimous in this "that no natural phenomenon can be adequately studied by itself." The natural sciences are so intimately related that each one, in so far as it has been mastered, will illuminate phases and dark areas in the others. If you make good use of the first two years I can promise you that you have laid a foundation which will bear good fruit. Do not be discouraged at the vastness of our art or the narrowness of human wit. Steady, daily industry will soon give you the sweet sense of overcoming. Labour is a moral obligation laid on all men:—

"And does the road lead uphill all the way?
Yes, to the very end.
And will the journey last the whole long day?
From morn till night, my friend."

"Genius," says Carlyle, "means transcendent capacity for taking trouble first of all." There is no palm of victory where there is no struggle. The Hill Difficulty may be climbed by cultivating the habit of industry and Bacon's heaven on earth may be enjoyed by the student of medicine "whose mind moves in charity, rests in Providence, and turns upon the poles of truth." It is equally a moral obligation to cultivate our faculties, as it is customary to exercise our muscles to keep them in order. The keeping of your bodies strong in no wise involves the keeping of your minds weak. Hard work is necessary for any degree of success. It is of paramount necessity that the student should learn something every day—"Now he weighs time, even to the utmost grain." "Having then resolved that you will not waste recklessly but earnestly use these early days of yours, remember that all the duties of her children to Medicine may be summed up in two words—*industry* and *honour*. I say first *industry*, for it is in this that student youth are especially tempted to fail. Secondly, *honour*. Though it is not exacted of you, yet exact it of yourselves, this vow of stainless truth. Vow yourselves crusaders to redeem that sacred sepulchre. Bind it like a shield about your necks; write it on the tables of your hearts."

When you have finished your preliminary studies in anatomy and physiology the vista of the life before you will become more and more entrancing. The wilderness of truth in the science of medicine, of surgery, and of pathology is no longer pathless. Many of the evergreen glades in these subjects have been trodden by your predecessors; and your first task is to master the geography of these before contemplating a tour of discovery in new and unexplored fields. As you spend your time in the wards and out-patient rooms bear in mind the lesson taught by Sir George Humphry to generations of Cambridge men—"Eyes first and much, fingers next and less, tongue last and least." Eye diagnosis is of the first importance. It promotes keenness of observation and accuracy of judgment. The cases you have charge of while holding the appointment of clerk and dresser form a standard or guide which will be of service to you all your life. They will not leave your memory if diligently watched and carefully described. Disease recurs, and so in practice you will see similar cases, and your first clinical experience will then be an aid to you in diagnosis, prognosis, and treatment. It is an excellent practice to keep brief private notes of your ward cases. And if you are skilled with the pencil, and the subject lends itself to illustration, make a drawing, which is often better than the most laboured description. If you cannot draw you can at any rate photograph. In a few years by sketching or photography you may accumulate a valuable album illustrative of disease and its treatment.

Nowadays there is much too much tendency to depend on coaching classes—a kind of spoon diet which cuts the ground from under that self-reliance in work and in preparation for examinations from which the best results flow. You cannot become a good doctor without self-sacrifice and persistent personal effort—

"The sweat of industry would dry and die
But for the end it works to."

Spoon diet is not fitted for those who wish to attain real knowledge in the natural sciences. Reflection is required, but in the rush and scurry of the present age no time is allotted for this most necessary process. Nothing is more certain than that you cannot gain a reasonable and soul-sufficing knowledge of our art and science by cramming. Time is required. Look into Nature with her vast powers and inexhaustible resources, these are never used for production by sudden and spasmodic efforts. "Consider the lilies of the field how they grow." How, then, can any one of us hope to gain the wisdom and knowledge required for the fight with death except by slow and persevering industry?

There is a point which I must not omit to urge upon you. Never hurt a patient's feelings either of mind or body by unwisely arranged questions or by unnecessary exposure of the person. Ask, for example, if a woman is married before asking whether she has any children, and never inflict pain by rough manipulations in your examination of a case. I well remember the castigation given to a student by the late Dr. Charles Murchison for using unnecessary vigour in percussing out the area of dulness in a case of pericarditis.

It is a common practice to attribute want of knowledge in a class or at an examination to nervousness. In most cases this is an error. Nervousness results, as a rule, from lack of intentness in work, such as dawdling in the wards; and connotes, as a rule, some lack of preparation, some imperfection in personal effort. Do not, then, let any occasion arise in which you may be tempted to make the excuse of nervousness.

A striking example of the importance of attention as a principal factor in the intelligence of animals is related by Dr. Bastian. The facts were communicated to Darwin by the late Mr. Bartlett of the Zoological Gardens. A man who trained monkeys to act, used to purchase common kinds from the Zoological Society at the cost of £5 each, but he offered to give double that price if he might keep three or four of them for a few days, in order to select one. When asked how he could possibly so soon learn whether a particular monkey would turn out a good actor he answered that all depended on their power of attention. If when he was talking or explaining anything to a monkey its attention was easily distracted, as by a fly on the wall or other trifling object, the case was hopeless. On the other hand, a monkey which carefully attended to him could always be trained. So it is with you and with me, and, indeed, all students of medicine, nearly everything depends on the power of attention, for without it knowledge cannot be garnered and the case is hopeless. Those, on the other hand, who cultivate carefully the power of attention have the assurance, not only of present success, but of a future bright with promise.

And now let me say one word to those who may fail in the struggle for prizes, for appointments, and in examinations.

"What though the field be lost?
All is not lost—the unconquerable will,
And courage never to submit or yield,"

will enable you to make good the failure and redeem the loss. Never say fail—banish such a word, such an idea from your life. I failed in a botany examination a long time ago. I am sure it was my own fault. But if you have worked well, as some do who fail, never mind the failure. The work you have already done will bear fruit and promote your success on a future occasion. No good work was ever wholly lost. It is good work which ultimately tells in life and not immediate and maybe transitory success. Your character is in the crucible. Gold must be tried by fire. Immediate success is of less importance than the formation of character. The stay of man in the midst of depression, discouragement, and defeat is the consciousness that he has faithfully rendered obedience to the command of the Preacher: "Whatsoever thy hand findeth to do, do it with thy might."

The third period of your life begins when you receive your diploma. It remains for me to say a few words on the life of the doctor. You will soon find that you have no hours of work or rest that anybody is bound to respect. You have no evenings, no nights, and no Sundays which you can call your own. A friend of mine living in a country town and having a practice extending 15 miles in every direction around it, received on a certain Saturday evening five letters from as many clergymen asking him to call immediately after morning service on the following day—requests which required a drive of 40 miles: and showed a thoughtful interest in his temporal and spiritual welfare. You are cast on the world with a parchment authorising you to practise on His Majesty's subjects. You require a knowledge of disease, but you also want to learn how to deal with men. There is much truth in the saying that to travel round the world is a more valuable asset to a medical man than the M.D. of any university. There are no lectures on *savoir faire* given in the schools. One of the first patients I saw in private practice was a man with a small carcinoma of the tongue, and as he seemed to hesitate about its removal it was agreed that a consultation should be held with Sir James Paget. After the examination of the patient Sir James took me into another room and to my utter surprise said, "I agree with you entirely, the case is a most favourable one for operation, but I have long made a study of men, and this man belongs to a rare type which invariably refuses operation, however earnestly we or other surgeons may advise consent." And it was so; Sir James Paget's eloquence broke on a stubborn reef and this patient was never operated on. Tact will sometimes succeed when without it the surgeon is powerless. I remember many years ago a patient very ill with strangulated hernia was addressed in a melancholy voice by a surgeon in these words: "I am very sorry to say that I shall have to operate on you"; the patient promptly replied: "You need not be sorry, I will not have any operation." Another surgeon came on the scene and after chatting for a while with the patient said: "This rupture must be put back, but I shall have to give you a little chloroform"; the patient immediately responded, "Thank you; please do it at once." This incident shows how a gloomy manner and an unhappy choice of words may be prejudicial to a patient. Solomon says, "Death and life are in the power of the tongue." "Operation," "cancer," and some other terms excite in some patients resistance or needless dread; and we should, when seeing a patient for the first time or in cases of serious illness, avoid using "such Ethiop words, blacker in their effect than in their countenance."

The man who thinks only of his patient as an interesting pathological specimen does not succeed in practice. Think of the tragedies and sadness which day by day we witness. The relations and friends want to know, not whether an interesting post-mortem examination may be expected, but what are the chances of recovery. Devote yourself without stint of time and trouble to your patient. Never give in, however grave and hopeless the illness, while life lasts, and you will have your reward and rightly and surely win the affection and esteem of the whole neighbourhood. In the despair of illness, even when "life is set at a pin's fee," action, not inaction, is comfort. It is the doctor's privilege "to labour in his vocation" till that "the fire of life kindle again" or the hour arrives when

"Labouring Art can never ransom Nature
From her inaidable estate."

Every man is a debtor to his profession. A vast field of our art and science still remains unmapped and unexplored. Let it be your ambition to contribute something to the slow but certain advance of medicine. Though in this as in every other branch of science each stage is associated more particularly with one or more great names which are interwoven in its history, yet we ought never to forget those of less renown, the most obscure doctor who has accurately recorded an important fact, he also has added his stone to the building. It not seldom happens that before qualifying for practice a student becomes interested in some problem which he determines as soon as time and opportunity offer to investigate. It was so in my own case. I trust that some of you will take up research work, for you will then add greatly to the interest and satisfaction of your life, and you will be fulfilling that sacred duty laid upon us all of adding one more stone to the building. Nothing can exceed the zest to life that such work gives. The joy of research work is, like that of religious belief, incommunicable from one person to another. Seize the occasion, do not delay, for in later years other duties may imperiously interpose, other work may fetter you in its prison, or strength may fail.

The attempt to solve one problem you will soon find determines the opening up of many others. The majestic range of science and the littleness of all our knowledge will dawn upon you. You will be brought face to face as a humble investigator with the problems of science, illimitable and inexhaustible, which await solution. You may attain the thrill of delight which accompanies the first perception, the slow unfolding of some new truth or principle. Though awed and amazed by the wonders that extend far beyond your vision, do not be discouraged by what may appear but as a puny effort on your part. Take courage and resolution from the words of Paracelsus:—

"So that when, quailing at the mighty range
Of secret truths which yearn for birth, I haste
To contemplate some one truth,
Its bearings and effects alone—at once
What was a speck expands into a star,
Asking a life to pass exploring thus,
Till I near craze. I go to prove my soul!
I see my way as birds their trackless way.
In some time, His good time, I shall arrive.
He guides me and the bird—in His good time."

The life of the doctor is so closely bound up with all the most intimate phases of human life, it touches so closely the finest and deepest chords of the life of man, that it is not surprising that literature teems with references to our profession. Often in the most satirical and humorous descriptions of the doctor's life there is some underlying truth which makes the satire or the humour all the more pungent. Dr. Sangrado combined a glib tongue with very active methods of treatment. No one could say of him as we can of the charlatans of the present day that—

"Mere prattle without practice was all his soldiership."

In appearance Dr. Sangrado was tall and withered. He is described as the learned forerunner of the undertaker. His routine diagnosis was obstructed perspiration. His staple remedies were drenching and bleeding. He believed it was a mere vulgar error that the blood was of any use in the system—the faster you draw it off the better. To live, he said, is merely not to die. A patient has no more occasion for blood than a man in a trance. It is recorded that Dr. Sangrado despatched business so fast that the fraternity of notaries who made wills found half their jobs spoiled, as they could not keep pace with him. Notwithstanding all this farrago of nonsense, it is true that in certain cases bleeding is an excellent remedy, and that drenching is patronised yearly by the fashion who overeat themselves now, as they did in Valladolid, in Sangrado's time, during most of the year.

In the case of Mr. Pilgrim the satire is directed against his commercial instincts. Mr. Pilgrim's estimate of even a confiding patient was apt to rise and fall with the entries in the day book. He was known to have discovered the most unexpected virtues in a patient seized with a promising illness. A good inflammation fired his enthusiasm, and a lingering dropsy dissolved him into charity. Gradually, as

his patients became convalescent, his view of their characters became more dispassionate; when they could relish mutton chops he began to admit that they had foibles; and by the time they had swallowed their last dose of tonic he was alive to their most inexcusable faults.

Passing from this sordid view, we have in the "Crown of Wild Olive" a noble statement of our relation to the necessary but always difficult question of fees: "A good soldier mainly wishes to do his fighting well. He is glad of his pay—very properly so—still his main notion of life is to win battles, not to be paid for winning them. So of doctors. They like fees no doubt—ought to like them; yet if they are brave and well educated—the entire object of their lives is not fees. They desire to cure the sick; and if they are good doctors, and the choice was fairly put to them, would rather cure their patient and lose the fee than kill him and get it. And so with all other brave and right-minded men: their work is first, their fee second—very important always, but still *second*. This is no small distinction. It is between life and death *in* a man; between heaven and hell *for* him. You cannot serve two masters: you *must* serve one or the other. If your work is first with you, and your fee second, work is your Master, and the lord of work, who is God. But if your fee is first with you, and your work second, fee is your Master, and the lord of fee, who is the Devil; and not only the Devil, but the lowest of Devils—'the least erected fiend that fell.' So there you have it in brief terms; Work first—you are God's servants; Fee first—you are the Fiend's. And it makes a difference, now and ever, believe me, whether you serve Him who has on His vesture and thigh written 'King of Kings,' and whose service is perfect freedom; or him on whose vesture and thigh the name written, 'Slave of Slaves,' and whose service is perfect slavery."

It is a solemn and momentous fact that no individual in the world stands alone: "For none of us liveth to himself and no man dieth to himself." Let us always remember this in our relations with patients and others with whom we are associated. It is in the bearings of our words and acts on the lives of others that the solemn responsibility of human existence lies. The ripples produced by the casting of a pebble into the sea will theoretically never cease.[1] Resolve then that your words and actions which start enduring ripples and eddies in the lives of others may be without spot and blameless. Wisdom is the principal thing, so let your influence lead to the love of wisdom, for is it not written that "She is more beautiful than the sun, and above all the order of the stars: and being compared with the light she is found before it, she is the brightness of the everlasting light, the unspotted mirror of the power of God, and the image of His goodness."

There is one word more I should like to add before concluding these remarks. The pathway of medicine is like the pathways of all other departments of life, in which the lot of man is cast. The student pilgrim of medicine has a free choice offered to him. It is the old old story of the choice between good and evil. None of us are exempt from the dangers and temptations of life. Pallas Athené in her legendary address[2] to Perseus demands an answer to the question as to which of two sorts of men are more blessed. "I am Pallas Athené; and I know the thoughts of all men's hearts, and discern their manhood or their baseness. And from the souls of clay I turn away, and they are blest, but not by me. They fatten at ease, like sheep in the pasture, and eat what they did not sow, like oxen in the stall. They grow and spread, like the gourd along the ground; but, like the gourd, they give no shade to the traveller, and when they are ripe death gathers them, and they go down unloved into hell, and their name vanishes out of the land. But to the souls of fire I give more fire, and to those who are manful I give a might more than man's. These are the heroes, the sons of the Immortals, who are blest, but not like the souls of clay. For I drive them forth by strange paths, that they may fight the Titans and the monsters, the enemies of Gods and men. Through doubt and need, danger and battle, I drive them; and some of them are slain in the flower of youth, and some of them win noble names, and a fair and green old age." There are still Titans and monsters to be grappled with in the spiritual and secular world, and splendid victories to be won by the students of medicine by industry and faith over disease and death. May it be your resolve to answer with Perseus: "Better to die in the flower of youth, on the chance of winning a noble name, than to live at ease like the sheep, and die unloved and unrenowned."

The love of knowledge is natural to man. I may add that so also is the love of goodness. In the competition of life it is well to try to think always the best: not the worst of your companions and contemporaries. "Suspicions among thoughts are like bats among birds, they ever fly by twilight." Sir George Humphry's variation of the motto "Evil be to him who evil thinks" contains a great truth: "Good will be to him who doth good think." If evil is born in us, it is equally certain that we are the inheritors of a principle of goodness. "False prophets have told us for centuries that men are nothing but fiends or wolves, half beast, half devil. Believe that," says Ruskin, "and indeed you may sink to that. But refuse that, and have faith that God 'made you upright,' though you have sought out many inventions; so you will strive daily to become more what your Maker means you to be—and daily gives you also the power to be—and you will cling more and more to the nobleness and virtue that is in you, saying 'My righteousness I hold fast, and will not let it go.'"

In this great city the sweetest story of an ideal doctor's life was written.[3]

> "Not once or twice in this rough island's story
> The path of duty was the way to glory."

The Drumtochty doctor won his way to glory, but the story of his life is but one example of the sympathy, the self-sacrifice, and the essential goodness exhibited in the lives of thousands of men who have ennobled that profession on the threshold of which you stand. The Drumtochty doctor didna' trouble the Kirk often; but in the path of duty and charity he did his best, regardless of reward, in the cold and in the heat, in mist and in rain, in winter storm and in biting winds, through peat bogs, and through snowdrifts, and through rushing torrents, year in and year out, for every man, woman, and child, in the wild straggling district in which he practised.

"The sweetest canticle," says Bacon, "is Nunc Dimittis, when a man has attained worthy ends and expectations." May each of you here have that sweet music as your reward. Wherever your lot may be set and under all the changing circumstances of time the bed-rock principles of an ideal life remain unchanged. Let me, then, commend to you the life and character of the Drumtochty doctor. He went about doing good and healing the sick. He visited the fatherless and widows, and kept himself unspotted from the world, thus practising that pure religion and undefiled which won for him, and which may win for you and for me, as we pass into the silent world, the answer from the King: "Amen dico vobis, quamdiu fecistis uni ex his fratribus meis minimis, mihi fecistis."

[1] The House of Fame. Chaucer. Liber secundus.
[2] The Heroes, by Charles Kingsley.

THE OPERATIVE TREATMENT OF CATARACT.[1]

BY A. E. J. LISTER, M.B., B.S. LOND., F.R.C.S. ENG.,
CAPTAIN, INDIAN MEDICAL SERVICE.

I. EXTRACTION OF CATARACT IN THE CAPSULE.

So much has been written on this subject that I fear it is difficult to add to it much of interest. However, as few writers with any considerable experience of the operation, except Major H. Smith, I.M.S., of Jullundur, have recorded their actual experience, I think it is of value for other operators to place their experience on record. My experience is based on 576 cases operated on by me, chiefly at the Civil Hospital, Jullundur, where I had the privilege of working for a year under Major Smith. 81 of these cases were done at the Cantonment General Hospital, Meerut.

General Results.

Suppuration occurred in two cases, leading to total loss of the eye. One of these disasters occurred in a case in which I had to introduce a spoon to extract the lens owing to vitreous appearing at the upper edge of the wound whilst

[3] Beside the Bonny Briar Bush, by Ian Maclaren.
[1] A paper read at the Bombay Medical Congress, February, 1909.

attempting to extract the lens. Suppuration at the site of the wound occurred in two cases, due, I think, to infection at the first dressing, as it was left to a compounder. One of these cleared up and caused no after-effects at all. The other did not clear up readily, but curiously enough caused scarcely any pain, and the patient left hospital on the eleventh day to proceed home, thinking he was all right. I am unable to say whether the result was a permanent damage to the eye. This gives a percentage of 0·34 per cent. of eyes definitely lost by suppuration. I attribute this low percentage to the use of the 1 in 2000 perchloride of mercury douche. There is no doubt that this lotion is a strong one to use for douching the eye, as I can vouch for from personal experience of it. I had my own eye douched with it as I happened to get some pus into it. It caused me such pain that I could not open my eye for a time, and it remained painful for four hours afterwards. Of course, it must be borne in mind that the patients are all under the influence of a 4 per cent. cocaine solution, and do not, as a matter of fact, complain of more than a little pain, and that it is a potent factor in preventing suppuration I think is undoubted, as very few indeed of these cases were given any preliminary treatment for the conjunctiva. I would not have operated on some of them had I not learned from observation at Jullundur that it was safe to do so if one used the douche. Slight keratitis occurred in two cases, which yielded readily to treatment by a saline purge and pilula hydrargyri internally. No cases of intraocular hæmorrhage occurred in my cases. No case of iritis was seen at all.

Lacrymation.—Troublesome lacrymation occurred in several cases, but usually yielded readily to treatment by instillation of weak zinc sulphate and boric acid drops. In one case, which was not relieved at all by this treatment and which persisted for a fortnight, relief was obtained by ordering the patient to douche the eye freely with cold water twice a day. Marked injection of the conjunctiva with lacrymation occurred in a certain number of cases. I attribute it chiefly to an excess of the 1 in 2000 perchloride lotion left in the conjunctival sac. It yielded readily to local treatment. If any marked pain was present leeches were always applied and invariably gave relief.

One complication of great interest occurred, and I have not heard of a similar one. A man, aged 73 years, an intelligent carpenter, was operated on by me for an ordinary mature senile cataract. His pupillary reaction was normal and projection of light perfect. The cataract was extracted in the capsule quite easily without any complication whatever. When the eye was opened for dressing on the fourth day the man said he could not see fingers held in front of the eye. The cornea was clear and the eye looked perfectly normal. The wound healed normally and the progress of the case was in every way normal, but he was never able to distinguish more than the movements of the hand in front of the eye and left the hospital after 17 days in this condition. Before leaving the hospital the fundus was examined but appeared normal. I was quite unable to understand why he could not see, and particularly asked him to come back again later to report progress. About three and a half weeks later he came to my house looking extremely pleased and walked into the room obviously seeing, as his other eye had been lost. He stated that a week before his sight began to come back and in three days was completely restored. That is to say, after a period of three weeks, during which he could only see hand movements, his sight was completely restored. I had no time to estimate his refraction carefully but his vision was excellent, and I have no doubt will be $\frac{6}{6}$ when his cornea settles down. The fundus was quite normal. It is not possible to say what was the exact cause of this condition. In the absence of a better explanation it seems possible that the removal of the lens entire, for it was a large one, may have had some effect upon the circulation of the retina, causing a temporary interference with its functions. The man's mental condition was quite normal, and there is no doubt as to the genuineness of the history, as he was a very intelligent carpenter, who could give an excellent account of his past services.

Escape of the vitreous.—In my series of cases escape of the vitreous occurred 29 times. In 22 cases it occurred during extraction of the lens in ordinary cataracts. In two cases it occurred during extraction of the lens, which had been previously dislocated by the "rawal" or native lens coucher. Including all cases this gives a percentage of 5·03. Taking cataracts whose lenses were not previously dislocated, this gives a percentage of 4·7 approximately. The only serious complications, due to the loss of the vitreous in my series, was drawing up of the iris, leading to occlusion of the pupil in one case. The eye has recovered, and I propose making an artificial pupil for the patient, who is still under treatment. In most of the other cases the escape of the vitreous caused no trouble at all, but in a few cases the patient suffered from lacrymation due chiefly to the edge of the iris being caught in the wound. In two cases the edges of the iris had to be snipped off. In one case, that of a very old woman, considerable flattening of the cornea resulted, and I was in despair of it getting right. In six weeks' time, however, it became all right, and she was anxious to have the other eye operated on. I am in favour of using a pad sufficiently large to exert mild pressure on the eye in cases in which escape of vitreous has occurred. In one case where this was not done I noticed when the eye was opened on the third day that the cornea at the lower edge of the wound was bent away from the upper edge and the wound gaping. This was due to a very nervous patient "squeezing" at the time of operation and after. The wound healed quite well but the iris was drawn up, occluding the pupil as described before. It is interesting that although the wound was open wide on the third day no suppuration occurred, and it healed soundly when a firm pad was applied.

The percentage of escape of the vitreous in the operation undoubtedly decreases with the experience of the operator and—a point upon which I wish to lay stress—the experience of his assistant. The first point is well illustrated by my own experience. In my first series of 63 cases at Jullundur in the spring of 1907 escape of the vitreous occurred in six cases, whereas at Jullundur in 1908 I did 64 non-selected cases in two days with only one slight escape of the vitreous in one case. In this case, moreover, the patient squeezed out the lens with a little vitreous on completion of the incision. The second point is illustrated by my Meerut experience in 1908. In a series of 81 cases I had escape of the vitreous in seven. I had to start operating with assistants who had no previous experience of eye operations at all and very little of surgery. I should mention also I was handicapped by having to operate out of doors for the first 40 cases owing to want of proper light. I am quite sure that had I had a good assistant at least half of the escapes of the vitreous would not have occurred. I think, therefore, it is impossible to lay too much stress on the importance of fully training your assistant. Every operator should if possible first act as an assistant himself to become fully familiar with all the details. When seeing a really good assistant at work one hardly realises what an important part he plays in the operation. It is only when having to train one for personal aid, particularly if he be not too intelligent, that the importance of his part and how much damage he can do are realised. He should be taught that not only should he keep the orbicularis muscle well under control, but that when placing his thumb in position for this purpose he should draw up the loose skin of the upper lid so as to keep the eyelids well open. If he does not do this the operator will not have such a good view of the field of operation—a very important desideratum. He should be taught that he must always watch the patient's expression, and the moment the patient shows any sign of straining he should take hold of the speculum lightly and be prepared to raise it, so as to prevent the patient putting pressure on the eyeball by closing of the lids and causing escape of the vitreous. A good assistant will anticipate this and avert it.

Results as regards vision.—It is quite impossible to give a statement of the exact vision obtained by every patient operated on in Indian hospitals in the provinces. At Jullundur, owing to deficient accommodation, the patients are allowed ordinarily to leave the hospital on the sixth day. The eye is still weak and cannot tolerate light well enough to allow the vision to be tested at a distance. In Meerut my patients are discharged on the tenth day, but that also is too early to allow their vision to be tested other than roughly. I show the patients groups of small dots, varying in size from one readily seen down to one as big as the ordinary full stop in print. They are asked to count these with a + 10 D. lens. If they can count down to the last size but one I am sure from experience their vision will be about $\frac{6}{9}$ when the cornea has settled down. This may not appear very scientific, but it is all one can do and it is for all practical purposes

sufficient. I have had the opportunity of seeing and testing many cases of my own and of Major Smith which came back for various reasons, and from an experience which is based on certainly not less than 250 of these cases, I should say that the average vision obtained after this operation, provided the eye was healthy before operation, is $\frac{6}{6}$.

Astigmatism.—I have worked out the refraction of a number of cases and find the resulting astigmatism is usually from + 0·75 D. to + 1·0 D. To European ideas this statement of results will appear unsatisfactory, as it has not the usual table giving the vision obtained by each case. To those, however, who know the East, and that the native of India is as well able to appreciate the value of an operation as the people of other countries, seeing that he judges by the result only, which after all is the essential point to people of any nationality, the fact that in six months (and that broken up into two periods through enforced absence) I was able to get 31 people to come forward for operation, will appeal as an argument of the first importance. It should be mentioned that this was in a small cantonment hospital, where no eye work at all had been done in the preceding year, and that all around are found in every station operators for cataract by the ordinary method of wide experience. Had my results been worse than those of others near me, no one who has any knowledge of India will deny that my cases would have fallen off as the results became known.

I will now make a few remarks on certain points of importance in connexion with the operation.

Technique.—My technique was exactly that of Major Smith, to whose kind tuition I owe almost all that I know of this operation; it has been fully described already, so I shall not describe it here, but a few observations on matters which my experience suggests may be of interest. I think that the most important thing in the operation is for the operator to have an exact knowledge of the particular way in which to extract each class of cataract. It is extremely difficult to give a description of the different classes of cataracts classified from the point of view of the operator. It is quite easy to point them out clinically, and I cannot too strongly emphasise the importance of the operator being able to tell at a glance which class of cataract he has to deal with, and how it will behave. For instruction on this point I advise him to see Major Smith's book, which is coming out shortly, as space forbids me to go into it here.

I strongly recommend anyone commencing to do this operation to spend some time with a surgeon who has a large clinique, and to acquire this knowledge practically, which, in my opinion, is the only satisfactory way. The knowledge doubtless can be acquired by an intelligent operator by actual experiment, a course which is, however, fraught with danger to the patient—a fact which is obvious when we read of the experiences of operators in America and elsewhere who have tried this operation without a full practical knowledge of the details. It does not surprise me at all that they condemn it and give it up. I admit at once that the operation is more difficult to learn and more dangerous to the patients in the hands of a beginner than is the ordinary operation. I consider, however, that in the hands of an experienced operator the freedom from complications, the avoidance of a secondary operation, and the better vision obtained are of such importance as to render it the ideal operation. When the fact that immature cataract can be operated on at any stage with absolute safety is taken into account, thereby saving patients sometimes years of weary waiting, and, as sometimes happens, loss of sight whilst waiting, from glaucoma or other diseases (an occurrence which I have seen several times myself), I think the advantages of this operation are so enormous as to render it the most important advance in ophthalmic surgery since the time of Daviel. To estimate the value of knowing the exact method of procedure in this operation, I may mention that on several occasions when operating at Jullundur, where both eyes are usually operated on at the same time, I have extracted the lens and had escape of the vitreous; the fact has been pointed out to me that I failed to modify the technique quickly enough. Major Smith has then operated on the other eye to show me where I had failed and has had no escape of the vitreous at all. Both eyes almost always, if the cataract be of the same degree of maturity, behave in the same manner in this operation. One of the ways in which escape of the vitreous occurs and may be prevented is in the operation for fairly immature cataracts. These cataracts are usually extracted by dislocating the upper edge first, which comes first through the wound. The operator by pressure directed backwards dislocates the lens and keeps the pressure up, but the lens does not come out. If the pressure be continued, as it must be, and the lens does not emerge, the vitreous may appear above the upper edge of the lens. If when the vitreous is seen in this position the pressure be still kept up, but its direction instantly changed so as to cause the lens to be carried upwards and its posterior surface to pass over the posterior edge of the incision, the escape of the vitreous will be averted. Escape of the vitreous occurred in this way two or three times to me whilst operating before I learned to modify my technique instantly so as to avert it. Sometimes the manœuvre has to be combined with counter pressure with a flat spoon above the wound. It is by slight variations of technique such as this, which are carried out by the experienced operator almost automatically, that the various difficulties which arise are overcome and escape of the vitreous and other accidents are avoided in this operation. The operator who is able to anticipate the various modifications of technique required in the course of the operation is the one who will have the best results. If in doubt as to how a particular cataract should be extracted, my opinion is that the safest way to proceed is to see if the lower edge of the lens can be dislocated first and the cataract made to turn over and come out with the lower edge first. This is done by pressing with the strabismus hook over the lower third of the cornea with a moderate pressure, the direction of the pressure being towards the patient's feet. If the lens is going to turn over, the lower edge will be seen commencing to dislocate and should not be hurried. As it dislocates, the pressure with the hook should be changed to the upward direction and the lower edge of the lens be followed up, to help it out and prevent its falling back again. If, however, it is not going to turn over and the upper edge of the lens dislocates first, the direction of the pressure should be immediately carried backwards and upwards, following up the lens as it passes out through the wound. It is the failure to instantly change the direction of the pressure and to modify its degree which accounts so often for escape of the vitreous and bursting of the capsule in this operation.

The importance of quickness.—I think it is very important, if the patient is very nervous, and particularly if a woman of the higher classes in India, who are I find usually very nervous, to extract the cataract as speedily as possible. I find I am most liable to get escape of vitreous in this class of case. It has occurred to me several times, whilst extracting one of the large white-looking mature lenses, which have to be extracted lower edge first, as previously mentioned, that all has gone well until the slow pressure of the lens turning over has pressed on the iris. Pain results, the patient strains, and if care is not taken the vitreous is very apt to be squeezed out, or the lens capsule to burst. I think the two best ways of guarding these occurrences in this class of case are: 1. To be sure you have a large enough incision. In a patient likely to give trouble I take care to give plenty of room for the lens to slip out easily. If the incision be made a shade larger than usual the lens comes out more quickly, a very desirable thing in patients with small self-control. 2. I have lately given chloroform in these cases. I was led to try it first by having a "purdah nashin" woman of a highly nervous type brought to me for operation. Her other eye had been unsuccessfully operated on by the ordinary operation elsewhere. I concluded she had behaved badly at the time of operation, and that she would do so for me. I decided to give chloroform. I had no difficulty and the case did perfectly. I think I should have not succeeded so well without chloroform. This case led me to try chloroform in other cases of the same class with equally good results. I have done too few to be able to come to a definite conclusion, but I think chloroform merits further trial. I put the patient fully under, completing all preliminary preparations as she is going under. I operate the moment anæsthesia is complete. The eyes are usually turned up, but this does not cause the least difficulty in this operation. The patient soon comes round, and usually is allowed to go to sleep if possible, as there is then less liability to vomiting, I find. The patient should, of course, be carefully watched until the anæsthesia passes off. I am fully aware of the increased danger of intraocular hæmorrhage from vomiting and do not advocate the general use of chloroform,

but it has been of great service to me in the class of case mentioned, and I mention it for that reason.

Iridectomy.—I prefer always to do an iridectomy. The skilful performance of the iridectomy is of special importance in this operation, as you have a large wound and greater liability of the vitreous to escape consequently. The iris should be very lightly caught; in fact, scarcely held at all by the forceps, as it is a sticky membrane and adheres to the forceps. If squeezed, the patient is very liable to strain and force out the lens or vitreous, or both. The edges of the iris are rather liable to prolapse, even when they have been carefully replaced, owing to the large wound. This may be suspected if the patient complains of excessive lacrymation when the eye is dressed. If very small the prolapse may be left alone, but if large the eye should be cocainised, and gently washed out with boracic lotion. The upper lid should be raised by an assistant by means of a strabismus hook and the projecting piece of iris snipped off with a sharp scissors. The lacrymation will soon cease if this be done, and the eye will settle down and give no further trouble.

II. THE AFTER-EFFECTS OF ESCAPE OF THE VITREOUS DURING THE OPERATION OF EXTRACTION OF CATARACT IN THE CAPSULE BY SMITH'S OPERATION.

In the various discussions which have taken place from time to time, as to the advantages and disadvantages of this operation, it has been contended by the opponents of the operation for the extraction of the cataract in the capsule that one of the chief objections to this operation is the frequency of escape of the vitreous. This being the only complication which is at all frequent, and the one which is most commonly met with by beginners in this operation, I inquired from Major Smith on my arrival in Jullundur in 1906 if any series of cases had ever been published in which the after-effects of escape of the vitreous in this operation were given. Major Smith informed me, that as far as he was aware, no such series of cases had ever been published either after this or the capsulotomy operation. I then offered to undertake a research into the subject and received permission from Major Smith to make every use of his hospital records which were placed at my disposal for this purpose. Every assistance was rendered me by Major Smith, whom press of work alone had prevented from carrying out this work before. Many thousands of cases in the operation books were gone through and the names of patients in whose eyes escape of the vitreous had occurred were noted. Each patient was then written to, and of them 95 presented themselves for examination. In certain of the tables it will be seen that the amount of vitreous and the remarks made at the time of operation are not given. The reason of this is that in the operation book a note only was made of the fact that vitreous had escaped. The details are noted by Major Smith on the patients' tickets always under four headings: (1) drop = 2 to 4 minims; (2) trace = 4 to 5 minims; (3) slight = 5 to 10 minims; and (4) some = 10 minims to one-third of the vitreous. The cases will be found classified in the tables appended under these headings.

As the cases went back as far as nine years, it is not surprising, considering the many thousands of hospital tickets there were, that all the tickets could not be found. Native patients are very apt to take the ticket home with them when they go, and in a large hospital with many hundreds of patients and a very small staff, such as there is at Jullundur, it is not always possible to prevent this. Some patients being satisfied with their condition do not wait to be discharged, but depart, taking the tickets with them. These facts will be well known to surgeons in India, but they are mentioned to make the matter clear to any who do not know India. Three were found to have had escape of the vitreous in both eyes, so the number of eyes examined was 98. In 90 of these cases no portion of the capsule of the lens was found to remain; in eight a portion of it or the whole was found to be present.

Method of Examination.

The vision of the patients was tested by Snellen's test-types, if they were able to read; in the case of those unable to read, who formed the bulk of the cases, by groups of dots, which they were asked to count. Special test-cards, with dots of various sizes, corresponding to Snellen's distant test-types, were kindly supplied for this purpose by Messrs. Lawrence and Mayo of Calcutta. I found it more convenient to cut out various groups of dots and to mount them on cardboard, one or two for each corresponding line of Snellen's test-types. When dealing with patients lacking in education and advanced in years, this plan will be found an advantage. I have many times tested the results given by the same people when asked to read the Snellen's test-types. I find that on the whole the dots are slightly the harder test of the two, so that all the results given may be taken as absolutely correct. I found the use of these dots more convenient than Landolt's optotype, which I also used for some cases. At first I endeavoured to test the vision with the glasses found by determining the refraction of each case by retinoscopy. I found after doing a number of cases that the astigmatism was scarcely ever over one dioptre, so to save time I gave up doing a retinoscopy in every case, and gave them the plus lens they preferred, which in almost every case was a plus ten dioptre lens. The excellent results obtained proved the correctness of my observations, as the results obtained were all without the use of cylindrical lenses. I have noted in the column of remarks the cases in which the spherical lens other than + 10·0 D. was preferred.

The patients in most cases insisted on returning the day they arrived, so that on account of press of work I was unable to do a retinoscopy in the majority of the cases. As excessive astigmatism has been alleged to be caused by this operation, it may be well to call special attention to these facts. I have also observed a number of cases in which escape of vitreous had not occurred, and I found that in them also the average astigmatism was one dioptre. Owing to enforced absence on several occasions 25 of the cases were kindly examined for me by Major Smith. I had also the advantage of the opinion of Major Smith on the few cases in which disease of the fundus was present, which will be mentioned later. The chief facts revealed by this research are as follows. The total number examined was 98; in no case was any detachment of the retina present. Disease of the fundus was found to be present in eight eyes. A detailed account of these is given. The exact time which had elapsed since the operation was known in every case. It averaged 3·706 years. The different periods since the time of operation ranged from six months to nine years.

Vision of Cases.

Tables will be found at the end of the paper giving the exact vision of each case, with one exception, in which by an oversight I forgot to note it at the time of examination. It may be wondered why the vision of the cases in Table A does not quite correspond with that of those in Table B, being in the form shown chiefly as $\frac{6}{5}$; the answer is that at first I did not test a patient further if he had a vision of $\frac{6}{5}$. Later, when I found what excellent vision they had, I endeavoured to estimate it exactly. It will be noted that the average standard of vision is very high indeed; thus in 61 cases in which there was no opacity of the cornea, capsule left behind, or disease of the fundus, it will be found that the vision was as follows:—

$$\frac{6}{3}=4,\ \frac{6}{3{\cdot}5}=6,\ \frac{6}{4}=4,\ \frac{6}{4{\cdot}5}=5.$$

$$\frac{6}{5}=4,\ \frac{6}{6}=33,\ \frac{6}{8}=2,\ \frac{6}{9}=3.$$

I may remark here that I find in India, owing to, I think, the better light and clearer atmosphere, the patients who come to me for examination usually read a line or two more of the Snellen's test-types than they do in England. I find very many British soldiers read $\frac{6}{3{\cdot}5}$ quite readily. This may account to a certain extent for the excellent vision of these cases, but it is not the chief reason, which is the absence of an after-cataract, leaving a perfectly free pupil and also the low degree of astigmatism. An important question is, Does the amount of vitreous lost exercise a marked effect on the vision obtained by the patient? The figures at my disposal are too small to admit of any definite conclusion, but they indicate, as far as they go, that it does not have any marked influence. Reference to the tables shows it does not appear to have any marked influence. Thus we find in five cases in

which the largest amount of vitreous is lost the vision was :— $\frac{6}{3}$, $\frac{6}{5}$, $\frac{6}{6}$, $\frac{6}{6}$, and $\frac{6}{9}$. Taking six cases classed as "Trace" and "Slight" we find the vision to be $\frac{6}{3}$, $\frac{6}{3{\cdot}5}$, $\frac{6}{5}$, $\frac{6}{6}$, $\frac{6}{8}$, $\frac{6}{9}$. The number of cases is far too small to be conclusive, but they are sufficiently striking to point out the need of further investigation on this point. Thus it does not appear from these cases that the amount of vitreous lost, provided that the eye recovers from the immediate result of the operation, is the important factor in determining the ultimate vision of the patient that might be expected.

I repeat that the number of cases is too small to be conclusive, but they are sufficiently striking to call for further investigation. Those operators who have observed cases in which a large amount—i.e., more than one-third—of the vitreous has been lost will have noticed that the vision of such patients is often much worse at the time of leaving hospital than the vision of those patients in whom a smaller amount has been lost. I have had the opportunity of observing these patients in a number of cases after leaving hospital, and have come to the conclusion that the vision of these patients is eventually much better than one might expect at the time of their leaving hospital; this observation is in accordance with the above facts, and will be of interest to those who may be intending to adopt the operation of extraction in the capsule. I think it is due to the greater distortion of the cornea which results temporarily, and to the fact that the normal tension and conditions of circulation and nutrition of the eye take longer to be re-established after loss of the vitreous than when it is not lost. I have noticed this to be particularly the case in very old and feeble patients. This fact may have led ophthalmologists who have not had the opportunity of seeing the number of cases in which escape of the vitreous has occurred, at a time when the eye has had sufficient time to completely recover, to regard escape of the vitreous as more serious than this paper tends to prove it to be.

Cases in which Disease of the Fundus was Present.

In eight eyes of the 98 cases examined disease of the fundus was found to be present. It may be of use to future observers to mention these in detail. They will be found in Table E. I will proceed to make a short comment on each :—

CASE 1.—Is one of syphilitic disease of the fundus and needs no comment.

CASE 2.—Presents the ordinary history and signs of malarial optic neuritis. I have seen many cases with a similar history and fundus condition. Major Smith says it is quite common in the Punjab and my smaller experience coincides with this.

CASE 3.—Is an ordinary case of disseminated choroiditis. As it was present in both eyes, and escape of the vitreous only occurred in the right eye, it cannot be attributed to escape of the vitreous fairly. To discuss the question fully as to whether the condition of the fundus was caused by the extraction of the lens in its capsule, as may be suggested by the opponents of this operation, is beyond the scope of this paper. I will only say in passing I do not think it was. Disseminated choroiditis is so commonly seen in the Jullundur clinic that I do not see any reason to connect it with the operation.

CASES 4, 5, and 6.—These were all cases in which the lens had been previously "couched" and presented the typical appearance of the condition, which always follows couching of the lens. This condition has been described fully in the medical press by Major Smith. It is interesting to note, however, that apparently in some cases at least removal of the lens does not prevent the progress of this serious condition.

CASE 7.—Is a case of bilateral optic atrophy. Escape of the vitreous occurred in one eye only, so it could not have been the cause of the condition in one eye, and it is reasonable to assume it did not cause it in the other. It may be said that the optic atrophy was caused by the operation for extraction of cataract in the capsule, in both eyes. The disease is such a common one in the Jullundur clinic in old men that I think it is quite as reasonable to say it was unconnected with the operation as with it. This matter needs a separate investigation. It should, however, be noted here, in connexion with this and the preceding case, that Major Smith always extracts a cataract if there is any hope of improving the vision for a time and that the condition may have been present in its earliest form at the time of operation.

In Case 4 the condition may possibly have been caused by the escape of vitreous, but as the eye was operated

TABLE A.—*36 Cases, with Record of Amount of Escape of Vitreous.*

Number.	Name.	Years since operation.	Vision.	Amount of escape of vitreous.	Astigmatism.	Remarks at time of operation.
1	Khara.	5	$\frac{6}{9}$	Trace.	—	Iridectomy.
2	Akho.	4	$\frac{6}{9}$	,,	—	Iridectomy. "Very nervous."
3	Harnam Singh.	5	$\frac{6}{9}$	,,	—	Iridectomy. Lens lifted on spoon.
1	Kara.	6	$\frac{6}{9}$	Slight.	—	Slight escape of vitreous. No iridectomy. He shot out lens and some vitreous on completion of incision from nervousness.
2	Bhagwani.	2	$\frac{6}{9}$	,,	—	Iridectomy. Lens extracted on spoon.
3	Dani.	5	$\frac{6}{9}$	,,	—	No iridectomy.
1	Mammon.	1	$\frac{6}{9}$	Drop.	—	Iridectomy.
2	Fata.	1	$\frac{6}{9}$	,,	—	,,
3	Tabo.	1	$\frac{6}{9}$	,,	—	,,
4	Deva Ditta.	2	$\frac{6}{9}$	,,	—	Lens dislocated by "rawal."
5	Jhandoo.	7	$\frac{6}{9}$	,,	—	Iridectomy.
6	Fateh Din.	5	$\frac{6}{3{\cdot}5}$	,,	+ 0·75 D. cylinder.	Iridectomy. Very nervous patient.
7	Achroo.	1	$\frac{6}{4{\cdot}5}$	,,	—	Iridectomy.
8	Mosaddi.	2	$\frac{6}{9}$	,,	+ 0·75 D. cylinder.	,, (*Note*—Left eye operated on by "rawal." Never saw well with it. Now only sees hand movements.)
9	Sharo.	5	$\frac{6}{9}$	,,	—	Iridectomy.
10	Atra.	1	$\frac{6}{9}$	,,	—	Lens expelled on completion of incision with drop of vitreous.
11	Kalo.	2	$\frac{6}{3{\cdot}5}$	,,	—	Iridectomy. (Vision $\frac{6}{3{\cdot}5}$ obtained with + 9·5 D.)
12	Bhagwana.	6	$\frac{6}{9}$	,,	+ 0·75 D. cylinder.	No iridectomy. (Vision $\frac{6}{9}$ with + 9·0 D. Sp. + 0·75 cylinder.)
13	Ranji Das.	2	$\frac{6}{3{\cdot}5}$	,,	—	Iridectomy. Cornea slightly hazy from old trachoma above.
14	Ako.	1½	$\frac{6}{12}$	,,	+ 1·25 D. cylinder.	Iridectomy.
15	Ganda.	1	$\frac{6}{9}$	,,	—	Iridectomy. (Vision $\frac{6}{9}$ with + 9·0 D. lens.)
16	Ganpat.	2	$\frac{6}{9}$	,,	+ 0·75 D. cylinder.	Iridectomy. (Vision $\frac{6}{9}$ with + 9·0 D. Sp. + 0·75 cylinder.)
17	Daswandhi.	7	$\frac{6}{3{\cdot}5}$	,,	—	No iridectomy.
18	Inchri.	1	$\frac{6}{9}$	,,	—	Iridectomy.
19	Biro.	1	$\frac{6}{9}$	,,	—	Iridectomy. Lens extracted on spoon. Very bad patient.
20	Hukram.	1	$\frac{6}{4{\cdot}5}$	,,	—	Iridectomy.
21	Jamal Din.	6	$\frac{6}{4{\cdot}5}$	,,	—	No iridectomy.
22	Natha.	2	$\frac{6}{24}$	,,	—	Iridectomy.
23	Gangoo.	5	$\frac{6}{12}$	,,	+ 1·25 D. cylinder.	Iridectomy. Very nervous patient.
24	Raman San.	7	$\frac{6}{9}$	,,	—	No iridectomy. (Vision $\frac{6}{9}$ with + 9·0 D. Sp. lens.)
25	Harnam Singh.	7	$\frac{6}{4{\cdot}5}$	,,	—	No iridectomy.

TABLE A.—*36 Cases, with Record of Amount of Escape of Vitreous—(Continued).*

Number.	Name.	Years since operation.	Vision.	Amount of escape of vitreous.	Astigmatism.	Remarks at time of operation.
1	Mamon.	2	$\frac{6}{9}$	Some.	—	No iridectomy. Lens expelled with some vitreous on completion of incision.
2	Rahmat Ali.	1	$\frac{6}{9}$	,,	—	No iridectomy. Lens expelled on completion of incision with some vitreous.
3 & 4	Gulaba (two eyes).	6 ms.	$\frac{6}{9}$	,,	—	—
5	Harnam Singh.	1	$\frac{6}{9}$	,,	—	Iridectomy. Lens extracted on spoon. Very bad patient.

on five years before and as the vision was $\frac{6}{9}$ when seen, it seems, taking into consideration the fact that in no other case in the series has any effect been proved to have followed escape of the vitreous, that it is quite as likely to have had another cause. On examining these cases critically it will appear that the case mentioned last, Case 4, Table E, only may be due to escape of vitreous. This condition, however, I have seen so commonly in the Jullundur clinic that I do not regard it as being due to loss of vitreous. Major Smith shares this opinion. I, however, leave the truth of this opinion for other observers to prove or disprove. It may be argued that the cause of some of these conditions may, if not loss of vitreous, be due to the disturbance of the conditions of the eye caused by the extraction of the cataractous lens in the capsule. This argument, I think, can only be advanced as regards two of the cases. Optic atrophy and disseminated choroiditis are very common conditions in patients attending the Jullundur clinic, and I regard these cases as attributable to ordinary causes, but on this point also further investigation is required. We arrive therefore at the conclusion that of the series of 98 eyes examined one case of retinal degeneration may possibly be due to loss of vitreous, or to the operation of extraction of the cataractous lens in the capsule, or to a combination of the two, and that one case of optic atrophy and one disseminated choroiditis may possibly be due to extraction of the cataractous lens in the capsule. If we take the escape of vitreous occurring during this operation as being about 5 to 6 per cent. in the hands of skilled operators and allow that one case out of every 98 in which this accident happens develops subsequent disease of the fundus, we arrive at the conclusion on the foregoing facts that loss of vitreous in this operation, provided the eye recovers from its immediate effects, is not the serious complication which it at first sight appears. It is interesting to note that this is the opinion arrived at by Major Smith from a general experience of these cases, apart from any definite research in this subject, some years ago.

It is specially interesting to note that detachment of the retina, the condition so generally feared as liable to occur after escape of the vitreous, did not occur in a single case. I suggest, in conclusion, that those ophthalmologists who state that loss of vitreous is such a serious accident in cataract operations have been guided by the facts as known to them in operations other than in which the cataractous lens is extracted in its capsule. It is quite probable that the eye in these operations hampered with débris and the capsule of the lens, which apart from those cases in which definite iritis occurs, must usually cause some degree of irritation, does suffer more serious damage when loss of vitreous also occurs than does the eye which is free from any irritating material. The fact that in the eight cases in which capsule was left there was disease of the fundus is interesting, but it should be remarked that in only one case was there a large amount of capsule—i.e., Case 10, Table C—the other cases having only a small amount as Major Smith always endeavours to remove as much of it as possible. On account of having a large wound it is possible to remove most of the débris, so that the condition in these cases was not quite the same as it is in the ordinary capsulotomy operation. Having regard to the facts given here, I maintain that though the number of cases is far too small to be conclusive it is sufficiently large to make us hesitate before we accept any conclusions formed by ophthalmologists, who do not extract cataract by Smith's operation, as to the seriousness of loss of vitreous in this operation. Further investigation will doubtless throw more light on this important subject. I repeat, however, let us be careful before we accept any dicta by any ophthalmologist, however distinguished he may be, on this important subject, unless supported by a series of cases, an account of the operation performed, especially a statement as to whether the capsule was left behind or not, and if iritis or iridocyclitis followed.

The accompanying tables show (1) number of years since the operation; (2) vision; (3) amount of escape of vitreous; (4) astigmatism; (5) remarks noted on case sheet at time of operation; and (6) notes on points of interest in brackets in last column.

TABLE B.—*25 Cases, with Amount of Escape of Vitreous Unknown.*

Number.	Name.	Years after operation.	Vision.	Amount of escape of vitreous.	Astigmatism.	Remarks at time of operation.
1	Hira Singh.	1	$\frac{6}{4\cdot5}$	Unknown.	+ 0·75 D. cylinder.	—
2	Miran Bux.	7½	$\frac{6}{9}$	,,	—	—
3	Ghulam Haider.	7	$\frac{6}{9}$	,,	+ 0·75 D. cylinder.	—
4	Koha.	4½	$\frac{6}{9}$	,,	+ 1·25 D. cylinder.	—
5	Mohammed Din.	1	$\frac{6}{9}$	,,	—	—
6	Roda.	6	$\frac{6}{9}$	,,	—	—
7	Omra.	2	$\frac{6}{9}$	,,	—	—
8	Mali.	5½	$\frac{6}{9}$	,,	—	—
9	Devi Ditta.	3	$\frac{6}{9}$	,,	—	—
10	Ghanja.	5	$\frac{6}{9}$	,,	—	—
11	Badh Singh.	9	$\frac{6}{9}$	,,	—	—
12	Kaka Shah.	6	$\frac{6}{3\cdot5}$	,,	+ 0·75	—
13	Iddoo.	6	$\frac{6}{9}$	,,	+ 0·5	—
14	Shah Din.	7½	$\frac{6}{9}$	,,	+ 0·5 D. cylinder.	—
15	Mehtab Singh.	5½	$\frac{6}{9}$	,,	+ 0·75 D. cylinder.	—
16	Mamon.	7	$\frac{6}{9}$	,,	+ 0·5 D.	—
17	Dania.	3	$\frac{6}{9}$	,,	—	—
18	Hakko.	4	$\frac{6}{9}$	,,	—	—
19	Mammond.	2	$\frac{6}{9}$	,,	—	—
20	Abdulla.	2	$\frac{6}{9}$	,,	—	—
21	Juna.	3½	$\frac{6}{9}$	,,	—	—
22	Naonid.	4	$\frac{6}{9}$	,,	—	—
23	Tabo.	3½	$\frac{6}{9}$	,,	—	—
24	Edoo.	6½	$\frac{6}{9}$	,,	—	—
25	Shadi.	3	$\frac{6}{9}$	,,	—	—

TABLE C.—*10 Cases (9 Patients, 1 double) in which Opacity of the Cornea was Present.*

Number.	Name.	Years since operation.	Vision.	Amount of escape of vitreous.	Remarks at time of operation. (Notes in brackets.)
1	Nathu.	7	$\frac{6}{9}$	Drop.	Iridectomy.
2	Sabho Davia.	5	$\frac{6}{9}$	,,	,,
3	Hurkan.	4	$\frac{6}{18}$	,,	,,
4 & 5	Gulaba.	6 ms.	$\frac{6}{18}$	Some.	No iridectomy.
6	Harkan.	5	$\frac{6}{18}$	—	—
7	Suchet Singh.	1	$\frac{6}{18}$	Drop.	Lens extracted on spoon.
8	Jhandoo.	6	$\frac{6}{18}$	,,	Iridectomy. — Nervous patient.
9	Hakam Singh.	1	$\frac{6}{18}$	,,	Iridectomy.
10	Ramai Dai.	6 ms.	*	,,	(Cornea opacity very marked, caused by small-pox.)

* Counts fingers at 1 yard.

TABLE D.—*8 Cases in which the Capsule of the Lens was Left Behind, owing to Bursting at the Time of Operation.*

Number.	Name.	Years since operation.	Vision.	Amount of escape of vitreous. (6 cases only.)	Remarks at time of operation. (Notes in brackets.)
1	Ako.	6 ms.	$\frac{1}{2}$	—	(Capsule needled previously.)
2	Ahmad Khan.	1½	$\frac{6}{9}$	Drop.	No iridectomy.
3	Nihala.	4½	$\frac{6}{9}$	—	—
4	Natha.	5	$\frac{6}{12}$	Drop.	—
5	Ahmed.	6	*	,,	Drop of vitreous taken out of right eye on account of tension.
6	Diwan Singh.	2	$\frac{6}{6}$	,,	Iridectomy.
7	Gaunsa.	6	$\frac{6}{9}$	,,	No iridectomy.
8	Shib Dial.	1	†	Some.	Iridectomy. (Dense after-cataract seen.)

* Not noted by error. † Counts fingers only at 2 yards.

TABLE E.—*Detailed Notes on 8 Cases (7 Patients, 1 Double) with Diseased Condition of the Fundus.*

CASE 1.—Name, B——. Operated on one and a half years ago. "Drop" of escape of vitreous in both eyes—both extracted on spoon. Vision = $\frac{6}{9}$. States that he had very poor vision in both eyes before cataract developed. Had syphilis. On ophthalmoscopic examination signs of old neuro-retinitis.

CASE 2.—Name, Para Singh. Operated on five years ago. Vision: Can only count fingers. Sight was all right for two years after operation. Then had high fever with delirium. Pupillary reaction very sluggish. Disc pale. Retina atrophied, probably caused by malarial optic neuritis.

CASE 3.—Name, Utman Dai. Operated on one year ago. Vision: Can only see hand movements. Both lenses well extracted in the capsule with a "drop" of escape in the right. Disseminated choroiditis seen in both eyes on ophthalmoscopic examination.

CASE 4.—Name, Edoo. Operated on five years ago. Trace of escape of vitreous in right eye. Left eye lost previously from trachoma. Vision = $\frac{6}{9}$. Very stupid old man. Could give no clear history of his condition. Retina presents appearance of retinitis pigmentosa sine pigmento in an early stage.

CASE 5.—Name, Ram Singh. Operated on one and a half years ago. The right lens is noted as having been previously dislocated by the "rawal" or lens coucher at the time of operation. It was noted also as having been expelled on completion of the incision with a "drop" of vitreous. Note made "bad patient." Vision = $\frac{6}{9}$. On ophthalmoscopic examination the typical condition of retinitis pigmentosa sine pigmento, which always follows couching of the lens.

CASE 6.—Name, Hako. Operated on two years ago. Vision: *Nil.* Drop of escape in the left eye. Lens noted as dislocated at the time of operation. The same fundus condition as in Case 5, but more advanced.

CASE 7.—Name, Khuda Bux. Age 60 years. Operated on four and a half years ago. Escape of vitreous in one eye only, amount not noted. Both lens extracted in the capsule. Primary optic atrophy in both eyes.

A REPORT OF SOME CASES OF VENOUS ANÆSTHESIA.

BY C. M. PAGE, M.B., M.S. LOND., F.R.C.S. ENG.,
SURGICAL REGISTRAR, ST. THOMAS'S HOSPITAL;
AND
S. G. MacDONALD, M.A., M.B., B.C. CANTAB., F.R.C.S. ENG.,
LATE HOUSE SURGEON, ST. THOMAS'S HOSPITAL.

Professor Bier, in April, 1908, read a paper at the German Surgical Congress entitled "On a New Method of Producing Anæsthesia in the Extremities." The procedure is applicable to either extremity, any part of which can be shut off from the general vascular system. The method consists essentially in the introduction of an anæsthetising fluid into one of the superficial veins of a given area of a limb, which area has previously been depleted of blood and isolated by tourniquets. The whole of the tissues of the isolated area are in this way infiltrated by exudation of the medium from the capillaries of that area. The cases recorded by Professor Bier were chiefly operations on the upper extremity, only one case of amputation of the leg having been performed. We have employed the method for nine operations, seven of these being major amputations and most of them cases in which general anæsthesia was considered inadvisable.

The details of the technique are as follows: the skin is prepared in the usual manner; a sterilised Esmarch's bandage is then firmly bound round the limb, from the periphery upwards, as high as the upper limit of the operation area. Above this, and in contact with its last turn, is placed another rubber bandage, sufficiently tight to check the arterial circulation. The bandage covering the distal part of the limb is now removed, and a third bandage is wound firmly round the extremity at the lower limit of the operation area. This bandage must be tight enough to prevent diffusion of the injected fluid into the distal part of the limb. After a preliminary skin infiltration an incision a couple of inches in length is made across the line of the vein chosen in the leg, usually the internal saphenous (This incision may be made at any convenient level, though Professor Bier advises that the vein be picked up in the upper part of the operation area.) The vein is isolated and a cannula tied into it firmly, as for an intravenous infusion. The cannula should be directed centripetally if the vein be opened low down in the operation area, centrifugally if opened high up. Any small vessels that may have been divided are now secured to prevent leakage, and a good syringe of about 100 cubic centimetres capacity is attached by a short piece of pressure tubing to the cannula. The fluid is then injected gradually, a varying but considerable amount of pressure being required. As infiltration occurs the area swells and turns dusky white in colour. Complete anæsthesia of the isolated area appears in from five to 15 minutes from the commencement of the injection. It may be accelerated by gentle massage of the part to facilitate diffusion of the fluid, or, if necessary, by the injection of more fluid. When anæsthesia is complete the cannula is removed and the vein is tied off. The skin incision, unless it falls into line with the operation incision, is sutured, and operative measures are then proceeded with.

This anæsthesia of the infiltrated area Bier terms "direct anæsthesia." After 15 to 30 minutes, however, from the time of injection the rest of the limb below the isolated area also becomes anæsthetic. This he terms "indirect anæsthesia." It is due to the establishment of a "block" in the nerve trunks as they pass through the infiltrated area. Indirect anæsthesia, however, seems to be of limited practical value, on account of the uncertainty of the time required for its completion. At the termination of the operation the upper bandage is slowly removed in order that vessels divided during the operation may be secured. If more than ten minutes be required for suturing the wound this bandage should be replaced, as sensation returns in the infiltrated area in eight to ten minutes after its circulation is re-established.

Should an infective focus exist in the lower part of the limb to be operated upon it would obviously be inadvisable to bandage the whole extremity. In such a case the limb is first elevated, and then the first Esmarch bandage is placed entirely above the septic focus, extending centripetally from the lower level of the operation area. The hæmostatic bandage is next applied at the upper limit of the operation area, and, *before removing the first Esmarch bandage*, a third bandage is applied at the lower limit of the operation area. If the latter proceeding be omitted blood will regurgitate from below into the area to be infiltrated, and imperfect anæsthesia will result. It is of the utmost importance that the vessels in the operation area be completely emptied before the injection be commenced. With regard to the incision for finding a vein, it is obviously better in amputations either to make this in the lower part of the isolated area, or to make it in such a position that it will fall into line with the amputation incision.

A limit to the extent of the tissues which can be infiltrated is set by the undesirability of injecting more than a certain quantity of the anæsthetising fluid; 200 cubic centimetres of a 0·5 per cent. novocaine solution (which may be regarded as a maximum dose) should suffice to anæsthetise the field for most set operations; the area cannot conveniently be increased once operative procedures have commenced. As anæsthetic Bier recommends "novocaine" on account of its relative non-toxicity. A 0·5 per cent. solution in normal saline gives reliable results. We have used a 0·25 per cent. solution successfully in one case, though anæsthesia was somewhat more slowly produced. The amount injected varies with the size of the limb and the extent of the area to be infiltrated. From 50 to 75 cubic centimetres suffices for a moderate-sized elbow, while 150 cubic centimetres are required for a knee area. More can

safely be employed in amputation cases, as only a small amount will subsequently reach the general circulation.

CASE 1.—A male, aged 60 years, was admitted to hospital on Jan. 27th, 1909, suffering from callous ulcer of 20 years' duration. It almost completely encircled the right leg in its lower half. The ulcer was foul, the fibula was in part bare, and the limb was œdematous as far as the knee-joint. The patient was suffering from profound anæmia and toxæmia. The vessels were much thickened, and the heart was weak and irregular. There was no albuminuria or glycosuria. On Feb. 2nd the leg was amputated at the seat of election by the above method of anæsthesia. 120 cubic centimetres of 0·5 per cent. novocaine were used; absolute anæsthesia was obtained; there was no evidence of shock, the pulse-rate before and after amputation being 88. The after-history was uneventful; suppuration occurred, however, so stitches were removed and the wound was allowed to heal by granulation. No necrosis of bone occurred, and the wound was soundly healed by April 19th, on which day the patient, having been provided with a knee-rest, left the hospital.

CASE 2.—A female, aged 45 years, was admitted to hospital on Jan. 26th, 1909, with moist gangrene of the third toe of the left foot. It had commenced in a slight injury sustained four months previously. On admission there was cellulitis extending on to the foot. Both legs were œdematous. There were no sensory changes nor vascular disease. The urine contained a trace of albumin; no sugar was found while the patient was in the hospital, though it was stated to have been present in the out-patient room. Amputation of the toe at the metatarso-phalangeal joint was performed on Feb. 4th by the above method of anæsthesia. 50 cubic centimetres of a 0·5 per cent. solution of novocaine was used. The operation was commenced ten minutes after infiltration; the patient felt the skin incision, although it did not evoke pain. Owing to the condition of the tissues the wound was left open. Vomiting occurred once 12 hours after the operation; apart from this recovery was uneventful, and the patient was discharged on Feb. 22nd, the wound having completely healed. The incompleteness of the anæsthesia in this case confirms Professor Bier's observation that the method is uncertain when applied to the hand or the foot; it probably results from the difficulty in completely depleting these areas of blood.

CASE 3.—A male, aged 76 years, was admitted to hospital on Feb. 1st, 1909, for senile gangrene of the left foot, which had commenced a fortnight before. The patient had suffered from polyuria and wasting for two years, and had had a slight right-sided hemiplegia 12 months previously. On admission the first, third, and fourth toes of the left foot were in a state of dry gangrene; pulsation could be felt in the popliteal and posterior tibial vessels of this side but not in the anterior tibial. The urine averaged 75 ounces daily and contained albumin and sugar. On a modified diet the daily excretion of sugar dropped from 1400 to 700 grains. In spite of rest, &c., the gangrenous process began to spread and the patient was having much pain, so on Feb. 6th circular amputation was performed at the lower third of the thigh, venous anæsthesia being used. The septic condition of the foot made it necessary to apply the Esmarch bandage entirely above the gangrenous area. 100 cubic centimetres of a 0·5 per cent. solution of novocaine were injected. The pulse rose from 96 to 122; the patient sweated and vomited once. From its appearance some circulation was still present in the operation area, and the rise in the pulse-rate was apparently due to the fact that some novocaine had reached the general circulation. The tourniquet was therefore reapplied, and, as anæsthesia was as yet imperfect, a further 60 cubic centimetres of the solution were injected. The patient now complained of much pain in his toes, so he was given chloroform inhalation (one drachm in all being used) for the skin incision. Consciousness rapidly returned, but there was no further rise of the pulse-rate, and no evidence that he experienced pain during the division of nerves or bone. Unfortunately the patient's heart began to fail on Feb. 10th and he died on the 14th.

Necropsy.—The lungs were congested and œdematous. The heart was hypertrophied; the myocardium was unduly soft, and there were atheromatous patches on the mitral valve. The aorta was riddled with atheromatous patches, and all the larger and medium-sized vessels were rigid and calcified. The head of the pancreas was unduly hard. Microscopy showed fatty infiltration; the islands of Langerhans were scarce. The kidneys were moderately granular. The brain showed no gross lesion to account for the old hemiplegia, but the lumen of the left middle cerebral artery was much diminished. Examination of the amputation stump showed no attempt at repair. The artery was rigid and calcareous, and no clot was present above the ligature.

In this case the rigidity of the artery accounts for the difficulty experienced in emptying the operation area of blood. In the production of the pain there were probably two factors. Firstly, owing to the septic condition of the foot, the Esmarch bandage had to be applied entirely above it; the result of this was venous congestion of the foot. Secondly, owing to the rigid condition of the vessels, more pressure than usual had to be applied to produce hæmostasis.

CASE 4.—A male, aged 43 years, was admitted to hospital on Jan. 11th, 1909, for chronic synovitis of the right knee of two years' duration. The skiagram showed no disease of bone. On Feb. 15th the joint was explored by Mr. C. A. Ballance, venous anæsthesia being used. 100 cubic centimetres of a 0·5 per cent. novocaine solution were injected into the internal saphenous vein, perfect anæsthesia being obtained in five minutes. The synovial membrane of the subcrureal pouch, and that on either side of the patella, was found to be studded with tuberculous nodules (verified by the microscope). The diseased synovial membrane was therefore removed. On account of considerable oozing into the joint cavity the latter was drained for 48 hours. The pulse-rate at the beginning of the operation was 90. Two hours later it increased to 100 and became irregular, but had again dropped to 90 in 12 hours. In 48 hours the pulse, though regular, was weak. Subsequently some superficial suppuration occurred. The wound had healed by March 23rd, on which day the patient, having been provided with a leather splint, left the hospital.

CASE 5.—A male, aged 44 years, was admitted to hospital on Feb. 14th, 1909, with an ununited fracture of the tibia and the fibula. The patient had sustained a compound fracture six months previously; a portion of the tibia between three and four inches in length had necrosed and come away. The patient was an alcoholic subject; there was no attempt at new bone formation; the foot was œdematous and painful, and there was a large pressure sore on the heel. Amputation below the seat of election was performed on Feb. 20th, 1909, venous anæsthesia being used. 120 cubic centimetres of 0·5 per cent. novocaine solution were injected into the internal saphenous vein; the tourniquet caused some slight discomfort which rapidly disappeared as anæsthesia became established. There was no alteration in the pulse-rate during the operation, but in this case some cardiac irregularity appeared on the fourth day. The wound healed *per primam*, the patient was provided with a knee-rest, and left the hospital on March 12th.

CASE 6.—A female, aged 39 years, was admitted to hospital on Feb. 6th, 1909, for diabetic gangrene of the left foot of six weeks' duration. The foot was red, œdematous, and covered by numerous ulcers and bullæ; some of the metatarso-phalangeal joints were disorganised and the corresponding metatarsal bones and phalanges were exposed. Before admission the foot had been treated with hot carbolic dressings; cellulitis had spread to the lower third of the leg, and the skin up to this level was red, œdematous, and covered with vesicles; the upper limit of the inflammation was sharply defined, and corresponded to the level of the dressing. The patient could move her toes, but sensation was impaired, and there was considerable pain. The vessels were thickened beyond her years, but pulsation could be felt in the anterior and posterior tibial arteries. The knee-jerks were absent; otherwise there were no symptoms of disease of the central nervous system. The urine, which averaged 50 ounces per diem, contained albumin and sugar (1800 grains daily). On standing it became dark green, and the distillate gave the carbolic acid tests. The patient was placed upon a modified diet; the foot was incised on several occasions under local anæsthesia and treated with baths and dry dressings. The cellulitis subsided, the general condition became much better, the carboluria rapidly disappeared, and the daily excretion of sugar gradually fell to 120 grains. In three weeks' time, however, the gangrenous process began to spread and amputation was advised. On March 9th this was performed by lateral flaps at the junction of the middle and the lower thirds of leg (somewhat unwisely though at the importunity of the friends). Perfect anæsthesia was rapidly obtained by the above method; no discomfort was experienced; the pulse-rate at the beginning of the operation was 140, at the end 120. (Previous to operation her pulse-rate varied between 100 and 120.) The tibial arteries were rigid and calcareous and the flaps became necrotic. There was no attempt at repair, so re-amputation was performed on March 22nd at the junction of the middle and the lower thirds of the thigh, spinal anæsthesia being used. Recovery was uneventful, the daily excretion of sugar had on a rigid diet dropped to *nil*, and the patient left the hospital on April 21st.

CASE 7.—A female, aged 58 years, was admitted to hospital on March 20th, 1909, for diabetic gangrene of the foot, which commenced six weeks before. There were present, both on the dorsal and the plantar aspect, sinuses, at the bottom of which bare bone could be felt. Pulsation could be felt in the anterior but not in the posterior tibial artery. The patient had polyuria and the urine contained much albumin and sugar (average daily excretion 3000 grains). The temperature reached 101° F., the gangrenous process continued to spread, and the patient was rapidly going down-hill, so amputation at the lower third of the thigh was performed on March 23rd. Venous anæsthesia was used (in this case 200 cubic centimetres of a 0·25 per cent. solution of novocaine); the patient was highly nervous, so a preliminary injection of a quarter of a grain of morphia was given. Owing to the condition of the tissues the Esmarch's bandage was applied entirely above the septic area; this produced pain in the foot, and chloroform inhalation became necessary until indirect anæsthesia was established. The patient was perfectly conscious, however, for the division of the nerve trunks and bone, and experienced no discomfort at this period. The pulse-rate before operation was 88, at the end 90. Unfortunately, the heart began to fail two days later and the patient died on March 28th.

Necropsy.—The heart was soft, large, and dilated (especially the right side) without much hypertrophy being present. The kidneys were large and pale. The amputation wound showed no attempt at repair.

CASE 8.—A male, aged 58 years, was admitted to hospital for gangrene of the right foot, which started a month before admission. During the previous eight months he had been under treatment for diabetes in the out-patient department; he had also attended an eye hospital, where he was told he had "diabetic hæmorrhages in his disc." On admission there were redness and œdema extending on to the dorsum and the sole of the involved foot. There was practically no pain; pulsation could be felt in both anterior and posterior tibial arteries. There was no lesion of the heart, nor did his vessels appear to be thickened beyond his years. The knee-jerk on the right side was obtained with difficulty; on the left side it was absent. The urine, which averaged 65 ounces daily, contained albumin and sugar; the daily excretion of the latter was 1100 grains. With rest and a modified diet the cellulitis subsided and the daily excretion of sugar dropped to 90 grains. For nearly a week the patient continued to improve, but then the gangrenous process began to spread and he suffered much pain. On April 7th amputation was performed by venous anæsthesia, 150 cubic centimetres of 0·5 per cent. novocaine solution being used. The patient's nutrition and vascular system seemed so good that it was decided to amputate at the seat of election. Good anæsthesia was obtained, but he had a twinge of pain as the anterior tibial nerve was divided. There were no alteration in the pulse-rate and no shock. Unfortunately, hæmorrhage from the stump occurred on the sixth day. The wound was opened up and the bleeding posterior tibial artery was secured. There was no attempt at repair and the flaps had commenced to slough. The patient did not recover sufficiently to make re-amputation possible; he gradually sank and died three days later.

Necropsy.—The aorta showed patches of atheroma. The heart was slightly enlarged and the mitral and aortic valves showed early sclerotic changes. The popliteal artery on the amputated side was practically normal; the posterior tibial artery was calcareous and rigid. The kidneys were large and pale. The pancreas showed neither macroscopic nor microscopic changes.

CASE 9.—A female, aged 55 years, had been under private treatment for diabetic gangrene of her left foot for three months. On admission to hospital on July 3rd, 1909, the anterior part of this foot was foul and gangrenous. The general condition was good. The cardio-vascular system presented no gross changes. Pulsation could be felt in both the anterior and posterior tibial arteries of the diseased side. The knee-jerks were present. There was polyuria, and the specimen contained much albumin. The daily excretion of sugar was 2420 grains; on a

modified diet this had dropped at the end of a fortnight to 1000 grains. The gangrene now began to spread along the inner aspect of the foot, and the patient was having much pain. Amputation through the lower third of the thigh was therefore performed on July 18th under venous anæsthesia. A preliminary injection of a quarter of a grain of morphia was given, as the bandage had to be applied entirely above the gangrenous area. The congestion of the foot resulting from the latter procedure caused considerable pain, and the pulse-rate rose from 92 to 104. A further injection of morphia was therefore given. Good anæsthesia was soon obtained, 150 cubic centimetres of a 0·5 per cent. solution of novocaine being used. The patient, however, suddenly lapsed into coma before the completion of the operation. She was infused with sodium bicarbonate, &c., but remained comatose until death, which occurred two days later.

Necropsy.—The kidneys were large and pale; the aorta was atheromatous. The pancreas and other organs showed no gross lesion.

COMMENTS.

If the technique be carefully carried out absolute anæsthesia will in most cases be readily obtained. Professor Bier reports two cases where analgesia only was present; this, however, was of such a character that the operation could be completed without resort to general narcosis. In our own cases the local anæsthesia has been perfect except in one case involving the toes only (Case 2). Probably the cause here was failure to empty the part of blood. In this instance, however, the analgesia was sufficient for the completion of the operation. In three cases in which the Esmarch bandage had to be applied above an infective focus, pain in the foot was evoked by the resulting venous congestion. Thus in Cases 3 and 7 a small amount of chloroform was necessary for the early stage of the operation. In Case 9 an injection of morphia sufficed. In all these cases the pain passed off when "indirect" anæsthesia became established. When the Esmarch bandage can be applied to the whole of the distal portion of the limb it can be applied sufficiently tightly without causing discomfort, except perhaps in those cases where the arteries are calcareous and rigid. Failure of the upper bandage to secure hæmostasis (and as a result imperfect anæsthesia) may occur in patients whose arteries are rigid. The same difficulty may arise where the thick part of the thigh is the seat of operation; thus in one case we had to employ the ordinary tubular tourniquet, a proceeding associated with considerable discomfort.

The danger of toxic symptoms from novocaine will only arise at the moment when the upper bandage is loosened, or when perfect hæmostasis has not been obtained. In our own amputations the amount of novocaine gaining access to the general circulation has not been sufficient to alter the pulse-rate, except in the case of an old man (Case 3) whose arteries were extremely rigid. Obviously, toxic symptoms are less likely to occur in amputation cases (where the solution has free egress from the divided tissues) than in more limited operations. In the former cases drainage of the wound for 24 hours is advisable. Professor Bier has recorded one case in which toxic symptoms arose. 150 cubic centimetres of a 0·25 per cent. novocaine solution had been injected; 15 minutes after removal of the bandage the subject, a woman, aged 60 years, vomited, and her pulse became small and quick. She rapidly recovered, however, and had no further symptoms. In a good many of our cases some irregularity and increase in the rate of the pulse were noted on the second or the third day. This late and transitory disturbance of the cardiac system we have also seen in some cases where only 10–20 cubic centimetres of a 0·5 per cent. novocaine solution had been used for producing anæsthesia by perineural injection. Professor Bier has recommended that at the completion of the operation the upper bandage should be very gradually relaxed, thus preventing too rapid diffusion of the novocaine. He has also suggested that normal saline solution should be run through the veins in the isolated area. It might be urged as an objection to this form of anæsthesia that the technique requires too much time. In a thin subject where the vein is readily found this should not take more than 15 minutes. In fat subjects, however, it is, for this reason, inferior to spinal anæsthesia for operations on the lower limb. In the case of the upper limb, when general anæsthesia is contraindicated, it seems to us to be a method of the greatest value.

For permission to publish these cases we beg to acknowledge our indebtedness to Mr. H. H. Clutton, Mr. W. H. Battle, Mr. C. A. Ballance, Mr. H. Betham Robinson, and Mr. E. M. Corner, under whose care the patients were admitted to hospital.

Reference.—Archiv für Klinische Chirurgie, Band lxxxvi., 4, "Uber einen neuen Weg Localanästhesie an den Gliedmassen zu erzeugen."

AN EPIDEMIC OF ENTERIC FEVER, PROBABLY DUE TO INFECTION BY A "CARRIER."

BY HENRY ROSCOE, M.R.C.S. ENG., L.R.C.P. LOND., D.P.H. VICT.,

SENIOR ASSISTANT MEDICAL OFFICER AT CHEDDLETON COUNTY ASYLUM, STAFFS.

THERE is grave doubt whether it can ever be proved beyond all cavil that any case of enteric fever has been infected by a carrier, for the difficulties in the way of absolutely excluding every other possible source are practically insurmountable. We now know that, whether or no the bacillus typhosus ever actually spores, certain individuals do occur which have such special powers of resistance and survival for lengthened periods, that they are as dangerously long-lived as sporing bacilli; infection may therefore lurk in unsuspected places long after its possibility has been lost sight of. On the other hand, it is almost equally difficult to prove that a probable carrier has actually infected any given case; the destructive critic could find weaknesses in any such case yet reported or likely to be reported. The following account of a slight epidemic at Cheddleton Asylum, which commenced in September, 1908, and lasted until March, 1909, justifies, in my opinion, faith in the carrier theory as an explanation. Owing to specially favourable circumstances, exclusion of other sources is almost completely possible, whilst there was on the scene a carrier who was capable of causing the mischief.

The asylum, opened in 1899, originally contained 16 wards; eight additional wards were completed and opened in April, 1909. It was in one of these new wards, F 19, that the epidemic began. From first to last there were 12 cases, all females. Enteric fever was not diagnosed for a few days as there had been no case here for six years. During these few days the first three patients, F a, F b, and F c, were not isolated, and one of them, F a, who was nursed in the sick room F 11, was in close contact with a working patient, F d, who helped to remove slops, &c. F a began to be ill on Sept. 26th, F b and F c on the 29th; F d was attacked on Oct. 12th, F e on Nov. 3rd, F f on the 6th, F g on the 15th, F h on the 26th, F i on the 27th, F k on Jan. 12th, F l on Feb. 3rd, and F m on March 9th.

Since the last-mentioned date up to that of writing, Oct. 1st, there has been no case resembling enteric fever, although in several instances of slight fever a Widal test has been applied with negative results. A positive reaction had been obtained in all the 12 cases noted above, with the exception of that of F i, who died on the tenth day of illness after perforation. Nine of the 12 cases occurred in ward F 19, the exceptions being F d, F f, and F m. F d has already been accounted for; F f was a refractory patient in ward F 14, who was dirty in habits and who required attention at night, this being supplied by a relief night nurse, somewhat inexperienced, who also attended to similar cases in F 19. Assuming for the moment that there was a carrier in F 19, and that she was a patient of dirty habits who required attention at night, the connexion is obvious. As regards F m, there is no really satisfactory explanation. She lived in ward F 15, which is in the same block as F 14, and, being at times refractory, was at such times sent for short periods to F 14, and was so sent on several occasions about the time when she became infected. It can only be suggested that she came in contact with some infective matter which had escaped sterilisation when the ward was disinfected after F f sickened. As F m was a restless patient, with well-known propensities for picking up and hoarding rubbish, this is a possible, if not a convincing, explanation.

It should be mentioned that all cases were, as soon as diagnosed, removed to the asylum isolation hospital, and that thorough disinfection was carried out after each case occurred. The procedure was to wash floors, walls, fixtures, furniture, &c., with either chloros or formaldehyde solution, 1 per cent., according to the nature of the article to be disinfected, and to follow this up by spraying with formaldehyde solution, finishing up by aerial disinfection with gaseous formaldehyde, using a quantity of formalin calculated to give 0·25 per cent. of HCOH in the air.

It is clear that infection commenced in ward F 19, the inmates of which are mostly infirm old women, and which

was, *ipso facto*, less open to typhoid infection than any of the other female wards. The milk, food, and water-supply were the common supply of the rest of the asylum; nevertheless, samples of water from all the ward taps were submitted to Professor R. F. C. Leith of Birmingham University for examination, with negative results. No food, luxuries, or any other articles were brought into the asylum by the friends of F a, F b, and F c within the month preceding the beginning of the epidemic. Infection by flies may be excluded, as the asylum is singularly free from them. Its situation is windy and exposed, the trees are not yet grown, and the soil is exceptionally quick-drying. In the day-rooms, dormitories, corridors, and subways it is often impossible, even in summer, to see a single fly; and during September, 1908, and the succeeding months there was no rise above the normal number.

The county medical officer made an exhaustive investigation, and came to the conclusion that infection by any of the above-mentioned sources might be excluded, but suggested that there might be a carrier in the infected ward, and advised that all patients and staff who had been in the ward since its opening should be subjected to the Widal test. This was done; on Feb. 8th Professor Leith reported that in every case but one the result was negative. The exception was M. B., an old woman, aged 75 years, her blood giving a positive reaction. In consequence of this report M. B. was thereafter looked upon as a possible source of infection, and was kept at the isolation hospital until her death on April 23rd. In the interim samples of her urine were sent to Professor Leith, but he found no typhoid bacilli therein. On post-mortem examination no trace of recent disease was found in the intestines. The mesenteric glands were normal with the exception of a few, which were almost cartilaginous in consistency; there were also evidences in the lungs and elsewhere of obsolescent tubercle. The spleen was exceptionally small, only weighing 76 grammes, and was quite normal. The gall-bladder was dissected out with due care and was found to contain two small black stones and a small amount of inspissated bile. The walls were contracted and thickened, but there was no naked-eye evidence of catarrh. The cause of death was senile decay, the aorta and the arteries and veins generally being markedly atheromatous. The gall-bladder and its contents were sent to Professor Leith, and on May 5th he reported: "The gall-stones did not show the presence of bacillus typhosus; but the gall-bladder, besides containing the bacillus coli and other germs, undoubtedly contained the bacillus typhosus. From the rich bacterial content of the gall-bladder we have isolated a bacillus which gives all the reactions of the bacillus typhosus, including agglutination in dilutions of 1 in 100 with a known anti-typhoid serum. ..... M. B. was an undoubted typhoid carrier."

As regards the known previous history of the patient, one of her daughters states that six years ago she had an "apoplectic fit," but that, after some weeks in bed, she showed no signs of paralysis on getting about again. This was her only illness so far as is known during the past 20 years. She was admitted to the asylum on April 17th, 1908, and transferred to F 19 on May 6th, remaining there until removed to the isolation hospital on Feb. 8th. She was, when admitted, in fair health considering her advanced age, her mental condition being one of senile dementia. She deteriorated steadily physically until her death. She was a very troublesome patient, restless and never still during the day-time, dirty in habits and always requiring attention at night.

During the anxious period that followed recognition of the fact that enteric fever had broken out all patients in the infected ward were, of course, kept continuously in bed and temperatures recorded. M. B.'s temperature was never at any time above normal. If, therefore, she contracted enteric fever in the asylum at some period prior to Feb. 8th, 1909, when her blood gave the Widal reaction, she must have been an apyretic case without a single symptom. The inherent probability is infinitely greater that she had suffered from a mild attack of the disease at some antecedent period, without its being recognised or treated. This point, however, though of great importance to the asylum, is immaterial to the larger issue. What is beyond all question is that this old woman of 75, who had had an attack of enteric fever at some period not less than 11 weeks before her death, was at death capable of unlimited infection. The bacillus typhosus was vigorous and well established in her gall-bladder, and there is no reason to doubt that, had the patient survived, infectivity would have continued indefinitely.

It is highly probable that in a fair percentage of recovered cases of enteric fever the bacillus typhosus exists in the gall-bladder and is capable of more or less intermittent mischief for months or years to come. Has not the carrier been responsible for most or all of the mysterious epidemics or isolated cases which all know so well, and which have caused such labours of the parturient mountain of worry with the resultant ridiculous mousebirth of explanatory theory?

How, then, to deal with the problem of preventing infection? Shall the surgeon be called in to explore the gall-bladder after every case of enteric fever, and, with the aid of the bacteriologist, to determine whether infection persists? or shall the attempt be made to have the stools of all enteric patients sterilised for the remainder of their lives? The administration of intestinal disinfectants *sine die* is, of course, neither desirable nor effective, nor does one suggest that either of the other procedures is really practical politics. Perhaps some harmless yet efficient bactericide may yet be built up which may safely be injected into the gall-bladder in sufficient quantity, but the time is not yet.

THYROIDECTOMY AND A THEORY OF CANCER CAUSATION.

BY WILLIAM STUART-LOW, F.R.C.S. ENG.,
SURGEON CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, AND LECTURER ON RHINOLOGY AND OTOLOGY, MEDICAL GRADUATES' COLLEGE.

THERE is still much in the normal action, the physiology, of the thyroid gland that is hidden from us. It is certain, however, that sufficiently impaired function results in the tissues, so to speak, becoming water-logged with mucin—the establishment of myxœdema. I have never seen cancer and myxœdema at the same time in the same patient, and it is quite possible that the existence of excess of mucin in the tissues may act as an insurance against the origin of carcinoma and sarcoma. The antithesis of thyroid sluggishness and over-abundance of mucin in the system would be thyroid over-work, and consequent diminution in the normal quantity of tissue and surface mucin. This is the state of the system that I believe to have detected in malignant disease; and it constitutes in its earlier stages, in my opinion, the true precancerous condition—viz., hypomyxia, both of tissue and surface mucin, as enunciated in "Mucous Membranes, Normal and Abnormal, including Mucin and Malignancy" (Baillière, Tindall, and Cox), and "Mucin and Malignancy: Facts and Theories" (THE LANCET, Sept. 20th, 1902, p. 807). The smaller thyroid producing but little secretion is the common condition in over-fed people with much subcutaneous fat. When this thyroid inaction passes to an advanced degree atrophy occurs, with the result that myxœdema supervenes. It is, on the other hand, a remarkable fact and well recognised that in the bodies of those whose death has been due to wasting diseases, such as tuberculosis and carcinoma, the thyroid is found to be large, showing evidence of much secretion having been thrown into the system. This over-action may have gone on for months and have given rise to the great emaciation seen in these subjects. Another point, of which I have never been able to get or give a satisfactory explanation, is that there exists in most cases of carcinoma a quickening of the pulse. May this not be another evidence of increased thyroid action? The obvious rapidity with which wounds in the cancerous heal is very striking and indicates increased metabolism and tissue change, and may, perhaps, be explained by the increased functional activity of the thyroid.

For some time, after years of careful observation of many cases of carcinoma and sarcoma in all stages, I have come to the conclusion, looking on the thyroid gland as the fly-wheel of body growth and metabolism, that this organ is very liable to over-work, that the body metabolism in this manner is liable to become over-driven, and that so the thyroid may be a causation factor in the origin and continuation of malignant disease. Holding these views, I have long had it in contemplation to perform more or less complete excision of the thyroid gland in inoperable carcinoma as the best means of eliminating or ameliorating a

disturbing factor in the diseased organism of the carcinomatous. This having now been carried out in three instances the following are the facts about these cases.

CASE 1.—An elderly man, aged 63 years, went to the Central London Throat, Nose, and Ear Hospital because of difficulty and pain on swallowing and on account of a large swelling on the left side of the neck at the angle of the jaw. After careful examination by my colleagues the case was pronounced to be epithelioma of the base of the left side of the tongue and quite beyond operation. 14 days later Dr. W. F. Colclough of Sidmouth sent him to consult me privately. A large mass of hard glands was found below the left angle of the jaw, and a carcinomatous ulcer of the size of a penny very far back on the left part of the base of the tongue. This had already begun to spread on to the palato-glossal fold and to a small extent to the side of the adjacent floor of the mouth. There were well-marked induration and considerable pain shooting into the ear and upwards and backwards to the occipital region. The history was that only during the last month had he had pain to speak of, and that only on seeing Dr. Colclough had he been told of the grave nature of the malady. I doubted the likelihood of getting away all the growth, but the patient pressed me so hard to do something because of the pain on attempting to eat and at night that I consented. On Dec. 2nd, 1908, the entire left half of the tongue was removed right back to the hyoid bone, together with the palato-glossal pillar and adjacent affected part of the floor of the mouth; and afterwards the thermo-cautery was freely applied. Laryngotomy was first performed and the cheek split to give free access; the mass of cervical glands was also excised. The patient stood the operation well and was able to return to Devonshire on the eighth day. For six weeks he did very well and was able to eat and speak wonderfully, but the following week the neck began to swell, and Dr. Colclough, after trying cinnamate of soda injections, sent him up to me again with recurrence of the disease, characterising him, quite justifiably, as "doomed."

An extensive recurrence was found—a mass of hard glands in the neck at the original seat of operation, which was already breaking down in the centre and discharging blood and pus. The left side of the floor of the mouth bulging up was full of an ulcerated mass of growth, which extended backwards to the same side of the pharynx and base of the remaining half of the tongue. He had a considerable degree of dyspnœa; consequently it was decided to perform a low tracheotomy at once. This was done next morning, but a complete excision of the thyroid gland was first performed. Chloroform being administered, the entire thyroid was exposed by means of a semilunar collar incision. The gland was firmly bound down to the adjacent structures as if there had been an inflammatory condition causing adhesions; it was very vascular, necessitating the tying of many vessels, the whole thyroid, however, being removed in one piece. Tracheotomy was then performed, and the patient, having stood this operation well with no evidence of shock, was back in bed in an hour from the commencement of the operation. The recovery was uninterrupted, the patient being up on the second day; the wound healed by first intention, and he was out walking in the sun on the seventh day. On the twelfth day the mass in the neck had almost ceased to discharge, was considerably smaller, and not at all painful; the induration had also lessened. The patient was able to swallow and talk much better, and could open the mouth further and without pain, there being also diminution of the swelling and hardness in the mouth and pharynx. The profuse flow of saliva from the mouth was now much reduced; the pulse and temperature became normal, the pulse being 68 per minute. (This varied from 76 to 83 before the excision.) Altogether the patient seemed better after the complete removal of the thyroid, being much brighter in himself, feeling more comfortable in every way, and sleeping longer at a time. The only other treatment consisted in the administration of mucin, and as far as possible an anti-hypomyxiatous diet. He took three ounces of the elixoid mucin a day, by sipping, as it was most soothing and moistening to the tongue and throat.

The question was—Would this patient become myxœdematous, and if not, why not? If myxœdema developed at all it should be late in appearing, because the theory is that mucin being so deficient in the carcinomatous subject, even after complete removal of the thyroid, it would be long in accumulating to such an extent in the tissues as to show itself in the usual myxœdematous manner. The idea that the thyroid gland had been overworking was borne out by the result of the pathological examination. The following is the report of Dr. George Eastes: "The thyroid tissue shows no encapsulated growth, and to the naked eye nothing but general hypertrophy is suggested. Microscopically some of the gland spaces are dilated, but there is no gross lesion anywhere. The case is one of diffuse parenchymatous hypertrophy." Dr. Wyatt Wingrave's report also bears this out: "Specimen of thyroid gland, received Feb. 14th, 1909, from Mr. Stuart-Low. There is but little variation from the normal thyroid. The most characteristic features are: 1. Increase in the interlobular connective tissues, which is also marked in the acini. 2. Congestion of the acini, which are on the whole somewhat smaller than normal. 3. Diminished staining action of the colloid substances. 4. Intra-acinous cells were normal."

The excision of the entire thyroid gland was performed on Feb. 14th, 1909, and the patient lived until June 22nd, 1909, when he died from septic pneumonia. During the four months he developed no symptoms of myxœdema. He was singularly free from pain, and the growth in the throat, mouth, and neck did not increase to any appreciable extent, but ultimately softened and broke down, the discharges during this process giving rise to the septic pneumonia. Another remarkable point about the case was the increase in weight—he gained 1 pound per week for two months after the excision of the thyroid.

Although certain that in this case the pain had been relieved (the patient being emphatic concerning this) and that the rapid increase of the growth had been arrested, I was disappointed with the result, and in no other case was the operation again undertaken until May 9th, 1909.

CASE 2.—The second case was that of a man, aged 45 years, whom I showed at the last meeting of the Laryngological Section of the Royal Society of Medicine on May 7th, 1909, as an inoperable case of epithelioma of the larynx. The man was a porter in the General Post Office, who came to the clinic at the Central London Throat, Nose, and Ear Hospital complaining of hoarseness and difficulty of swallowing of two months' duration. He gave a history of repeated attacks of influenza, but not of syphilis. A large, grey, mushroom-like mass was seen covering over and projecting into the larynx. About one-third of this mass was removed with forceps; this gave him considerable relief. Dr. Wyatt Wingrave reported that it was certainly a very rapidly growing epithelioma—"one of the most virulent that he had ever seen." In the discussion which followed at the sectional meeting Mr. H. Tilley said that he thought the growth was certainly of a malignant nature and far too extensive to be operated upon. He also emphasised the presence of many enlarged glands in the neck.

On May 10th, 1909, under local anæsthesia (1 per cent. cocaine) a collar incision was made over the thyroid, the isthmus was divided, the left lobe isolated, and all the vessels proceeding to and from this ligatured. Suddenly the larynx became obstructed, probably from the large growth hanging over its entrance having become fixed in the passage. The patient very rapidly became cyanosed and respiration ceased. It was urgently necessary to perform tracheotomy, when recovery quickly took place. This accident proved the wisdom of having used local anæsthesia as against general anæsthesia in the particular case. It was now found impossible to remove the thyroid without greatly prolonging the operation, and it was thought best to tie the superior thyroid of the right lobe, and trust to this and efficient ligation of the left lobe to minimise the thyroid function. The large wound was partially closed and firmly packed with gauze. This patient made an excellent and uninterrupted recovery, leaving the hospital in a fortnight; the left lobe of the thyroid, all the vessels of which had been ligatured, sloughed, and came away in the dressings with the ligatures.

It is now five months since the operation was undertaken, and the case has been watched very attentively. Before this operation the patient was rapidly getting worse and losing weight, but since then he has been putting on weight, having gained 1 stone 1 pound. He is now swallowing better, and the growth in the larynx and pharynx has diminished very much in size. There has been no pain,

and the patient is much stronger and expresses himself as feeling better in every way since being operated upon.

This is the first case in which ligation, as distinguished from excision, has been practised and trusted to for the partial ablation of the thyroid. Judging from the results in this instance, the plan would certainly seem to answer well. Ligation is a more rapid process than excision, and the thyroid in these cancerous subjects is often enlarged, very vascular, and very adherent to surrounding structures—therefore often most tedious and troublesome to isolate.

CASE 3.—The third case was that of a man, a painter by trade, aged 58 years, who came to the clinic at the Central London Throat, Nose, and Ear Hospital on May 22nd, 1908, complaining of pain in the tongue and neck, and of a swelling on the neck of six weeks' duration. There was an ulcer of the size of a shilling on the right side of the tongue. It was excavated and indurated, and had the characteristic stony hardness around and towards the base of the tongue. The induration extended on to the palate and under the sterno-mastoid near the angle of the jaw. No doubt could be entertained as to the primary ulceration being epitheliomatous, or that the enlarged glands were a secondary extension from the tongue. The pathological report supported the clinical diagnosis, and it being considered futile to try to eradicate the growth thyroidectomy was decided upon. Complete hemi-thyroidectomy was performed on June 3rd, 1909, the left half of the thyroid, including half of the isthmus, being removed; it was found very vascular and adherent to the surrounding structures. The patient was in the hospital for a week after the operation, and during this time suffered no pain in the tongue or neck. For some time before the operation the pain in the neck, shooting from the tongue to the enlarged glands and up to the side of the head, had been so severe as to keep him awake, and necessitated his having hypnotics every night. He is now an out-patient and for some weeks returned to his work as a painter. The ulcer on the side of the tongue healed, the induration became much less, and the glandular swelling softer.

CASE 4.—The fourth case was that of a man, aged 70 years, with a large excavated ulcer on the outer wall of the left side of the naso-pharynx and a mass of hard glands under the sterno-mastoid. He was in a very low and weak state when he first came to the hospital, and altogether a very bad subject for any operative procedure. He was rapidly losing weight and complained of great pain in the throat and neck. Under local anæsthesia, on June 16th, 1909, the thyroid vessels were ligatured on both sides. He recovered well from the operation, lost all his pain, and the glands lessened in size and softened somewhat. He was able to leave the hospital for his own home, which was a very poor one, on the tenth day. He lingered on for six weeks, and did not suffer much pain even near the end.

CASE 5.—The fifth case was that of a man, aged 65 years, with epithelioma of the soft palate, and some secondary glands on both sides of the neck. On July 10th hemi-thyroidectomy was performed under local anæsthesia. He is still under observation and has gained 6 pounds in weight. His general condition is good and the glands have become smaller and softer. He is attending regularly as an out-patient. A very interesting, instructive, and important change took place in the hard mass of glands on the right side of the neck in this patient, commencing soon after the operation on the thyroid—viz., gradual and progressive softening. This went steadily on until there was great tension of the superficial surrounding tissues, and it was decided to incise the swelling and anticipate pointing and ultimate bursting of the enlargement. On freely opening it a large quantity of glairy mucoid fluid was discharged, which, on pathological examination by Dr. Wyatt Wingrave was found to consist chiefly of mucin. The inference, therefore, may be taken to be that the removal of the thyroid had induced a myxomatous degeneration in the mass of cancerous glands. Since this incision the mass of secondary growth in the glands has slowly diminished, and much discharge has taken place ever since, containing pieces of broken-down tissue which have sloughed away. On inserting the finger a cavity can be felt where the mass of hard glands was.

There seems no doubt that partial removal of the thyroid has an influence on these growths. It seems to have a deterrent effect on the rate of growth of the primary tumour; the secondary glands, too, seem to be favourably affected, as in these cases there was a softening change in the glands, and they were much less painful. In all cases the pain was very quickly relieved. The patients, instead of losing weight, as they were doing before the operation, put on weight. Another thing noted in all these cases was a distinct slowing of the rate of the pulse. The second, third, and fifth cases were operated upon at a much earlier date than the first and fourth, and it would appear to be best to intervene as early as possible, not waiting until the patient is too low and weak. I have put these cases on record as, so far as I can find, the treatment is new and seems warranted by the results.

Harley-street, W.

A FATAL CASE OF ENDOCARDITIS OCCURRING DURING SCARLET FEVER,

WITH A NOTE ON THE BACTERIOLOGY OF SCARLET FEVER AND ACUTE RHEUMATISM.

BY J. M. CLEMENTS, M.D. R.U.I., D.P.H.,
MEDICAL OFFICER OF HEALTH, BATLEY.

THE notes of this case are of interest for the following reasons: (*a*) The rarity with which endocarditis occurs as a *fatal* complication of scarlet fever; (*b*) the presence of a streptococcus in the diseased endocardium; (*c*) the isolation of a similar streptococcus from the synovial fluid of a mild case of scarlatinal rheumatism; and (*d*) the possible relations of this organism to scarlet fever, endocarditis, and acute rheumatism.

Clinical history.—The patient, a boy, aged five years, was admitted to hospital with a mild attack of scarlet fever. There was no history of previous illnesses, and the note made on admission states that the heart was then normal. The acute stage of the scarlet fever soon passed off, the temperature being normal on the sixth day. On the eighth day of illness there was a slight rise of temperature, and from this to the eighteenth day the temperature varied between 98° and 100° F. The pulse-rate during the same period was accelerated, ranging from 100 to 148. This departure from normal caused some anxiety, especially as none of the usual complications, which were looked for daily, could be detected. A trace of albumin appeared in the urine from the thirteenth to the sixteenth day; it was only a faint trace, no blood was present, and it was not regarded as the cause of the rise in temperature. In the fourth week the temperature settled to normal and the patient was allowed to get out of bed. The pulse, however, still kept rapid, being usually over 100, and was frequently 130 or 140. At this time the boy was examined daily, and particular attention was directed to the heart and lungs, but with negative results. During the period from the fourth to the tenth week he was kept in the open air most of the day and a liberal diet with tonics was given. He did not make progress, but remained thin and anæmic, and did not enter into the games of the other patients. On the eightieth day definite signs of cardiac complications were observed for the first time. A note made on this day states that "the heart is dilated and there is a loud bruit audible all over the chest, transverse dulness half an inch to the right of the sternum and one inch outside the nipple line." Three days later (eighty-third day) the wrist and carpal joints of the right hand were swollen, and the patient complained of pain in this hand; there was no elevation of temperature at this time, as is usual with a swollen joint in scarlet fever. The degree of cardiac dilatation steadily increased; restlessness, dyspnœa, retching, and vomiting were prominent symptoms; and death occurred on the hundredth day.

Note made at the post-mortem examination.—"The liver and spleen are congested, but beyond this all the organs, except the heart, appear to be healthy. No infarctions were found. All the chambers of the heart are dilated, and *all* the valves are affected with vegetative endocarditis. Vegetations are present on every cusp of the aortic, mitral, tricuspid, and pulmonary valves; they are small, of the warty type, are confined to the edges of the valves, and do not extend to the mural endocardium. There is no tendency to ulceration, and there are no fungating masses such as are sometimes seen in malignant endocarditis. The vegetations appear to be quite recent and there is no thickening of the valves."

Smear preparations, made from the vegetations and stained, showed coccal organisms in groups and pairs among leucocytes and débris. Agar and blood-serum tubes inoculated with the vegetations and incubated gave a pure culture of a streptococcus, to the cultural characters of which I shall refer later, but before doing so I would draw attention to the following points as noteworthy in the clinical history. 1. The type of scarlet fever was very mild. 2. The occurrence of joint trouble for the first time so late as the eighty-third day. The usual time for "rheumatism" to appear in scarlet fever is during the second or third week of the disease. 3. The endocarditis probably commenced in the second week of scarlet fever, but was not detected until the eightieth day. The possibility of its existence was considered and the heart was carefully examined on many occasions, but no definite evidence of a lesion was discovered until the day stated. 4. Death was directly due to valvular endocarditis, a very uncommon cause of death in scarlet fever. While it is very rare to find this lesion post mortem in scarlet fever, there are clinical signs that it occurs in a small proportion, probably not more than 0·5 per cent. of the cases. In septic and fatal cases of the disease the heart is often seriously affected, but the damage is mainly done to the muscle wall, the muscle parenchyma and interstitial tissues suffering, rather than the endocardium. When the endocardium is attacked it is almost invariably the mitral valve that is affected, and there may be little or no clinical signs of a lesion. The true significance of a murmur appearing in the mitral area during an attack of scarlet fever or any of the infectious diseases, is often difficult to appreciate. It may indicate temporary weakness of the myocardium and papillary muscles, or it may be due to organic changes in the mitral valve. The following statement briefly summarises my experience of this condition in scarlet fever. At the onset of scarlet fever it is not uncommon to find a blowing murmur in the mitral area, systolic in time and well conducted towards the axilla, accompanied, perhaps, by a slight degree of dilatation, but as the acute stage of the disease passes off this murmur disappears, the heart returns to its normal size, and the patient leaves hospital with a sound heart. If, however, a murmur appears at a later stage of the disease, and especially if accompanied by a rise of temperature and accelerated pulse, not due to glandular swelling or other easily recognised complication, the probability that it is due to endocarditis of the mitral valve is very strong. A systolic mitral murmur appearing during an attack of scarlatinal rheumatism is in the large majority of cases due to endocarditis and will be permanent.

Bacteriology.—The streptococcus obtained in pure culture from the diseased valves has the following characters. It occurs in fluid media in short chains of two to six, frequently in pairs and small clumps. It is, therefore, of the streptococcus brevis type. It is non-motile and Gram-positive. It does not grow on gelatine at 20° C., but grows well on agar and blood serum at 37° C. It does not produce acid nor clot in milk. When tested for acid production in Lemco broth containing 1 per cent. of the following sugars—glucose, maltose, galactose, levulose, lactose, saccharose, raffinose, mannite, salicin, and inulin—it is found to produce acid in three—viz., maltose, levulose, and saccharose. The serum of patients suffering from scarlet fever does not agglutinate it, nor does the serum of patients suffering from scarlatinal rheumatism. The blood serums of three scarlet fever cases were tested for the presence of opsonins. The indices were 0·94, 1·1, and 1·68 respectively. It is noteworthy that the case whose index was 1·68 was suffering at the time from *rheumatism*.

At first I did not consider there was any causal relation between this streptococcus and the diseased endocardium. I had frequently isolated streptococci from the commoner complications of scarlet fever and from the circulating blood in septic cases (collecting the blood direct from the vein in the arm into a sterile glass syringe), and I had come to regard their presence as due to a secondary or terminal infection. But about this time I drew off some synovial fluid from the wrist-joint of a case of scarlatinal rheumatism, taking the same precautions to avoid skin contamination as in blood cultures, and after incubating it on agar and blood serum I obtained a pure culture of a streptococcus which gave the same sugar reactions and appeared to be identical in every way with the strain of coccus isolated from the diseased valves. This result appeared to me to open up the question of the relation of this streptococcus to scarlet fever, endocarditis, and acute rheumatism. The relationship of streptococci to these diseases is a very wide and difficult problem, and I do not propose to discuss it here, but will conclude this note by referring briefly to the chief views that at present hold the field.

Scarlet fever.—Streptococci have for many years been regarded as playing an important part in the cause of this disease and its complications. This view is based mainly on the constancy with which streptococci can be isolated from the inflamed fauces and commoner complications. They are present in the breaking-down glands, in the pus from suppurating mastoids, in the heart, lung, and kidney complications, and not infrequently in the circulating blood of septic cases. The following criticism may be offered to the view that scarlet fever is due to a specific streptococcus as stated by Klein and others. No constant type of streptococcus can be isolated from the inflamed throat or the various complications of the disease. The application of Gordon's tests shows that a variety of streptococci can be isolated not only from the inflamed fauces, but even from the same complication. The streptococci isolated, even from septic and fatal cases, have a low degree of virulence when injected into animals and do not produce any condition resembling scarlet fever. It has been suggested that scarlet fever is not caused by one particular strain of streptococcus, but is capable of being produced by a variety of streptococci, and in support of this view are brought forward those *so-called* cases of scarlet fever following burns, surgical operations, and parturition, where no evidence of exposure to the infection of scarlet fever can be found. The absence of a constant type of streptococcus as tested by Gordon's methods would also lend support to this view. Against this view we have the clinical evidence that scarlet fever always breeds true; it does not lead a double life, appearing at one time with all the symptoms as we know them well marked, and at another time as some other disease or in some questionable form. For the present we must be content to regard the streptococcal origin of scarlet fever as not proved, and in this connexion it may be well to remember that, prior to the discovery of the Klebs-Löffler bacillus, streptococci were regarded as the specific cause of diphtheria.

Endocarditis and acute rheumatism.—The relation of streptococci to these two conditions may be considered together, endocarditis being a prominent, if not the essential, lesion in the symptom-complex known as acute rheumatism. Many investigators have from time to time described organisms they have found in the blood and diseased tissues of acute rheumatism, and during the last eight or ten years attention has been concentrated on the presence of a short streptococcus or diplococcus in the blood of this disease. This organism has been isolated by several observers, and notably by Poynton and Paine in this country, who have succeeded in isolating it from over 30 cases of acute rheumatism, and have demonstrated its presence in the blood, joint fluid, rheumatic nodules, and elsewhere during life, and in the heart's blood, pericardium, endocardial vegetations, and elsewhere after death. They have also shown that intravenous injection of cultures of this organism into rabbits produces all the cardinal lesions of acute rheumatism. Their observations and experimental results have been confirmed by Beaton, Ainley Walker, and Beattie. On the other hand, other bacteriologists, such as Horder, Andrewes, and Bulloch, have consistently failed to isolate cocci or other organisms from the blood of cases of acute rheumatism during life. They also state that only in a few cases have they obtained cocci from the lesions after death. The failure of some of these observers to isolate organisms from the blood cannot be attributed to their methods of blood examination. Horder has shown that by using the same methods in cases of ulcerative endocarditis he has obtained positive results in over 90 per cent. of the cases examined. In some of the latter cases Pfeiffer's bacillus was isolated from the blood, a delicate organism that is grown only with difficulty. It would therefore appear that his methods of blood examination succeed if micro-organisms are present.

The explanation of the discordant results of these two schools may perhaps lie (1) in the difference of the technique employed; from the accounts given by some of the observers it would appear that sufficient care was not taken in obtaining

the blood to avoid skin contamination; (2) the results may be partly due to a failure to distinguish between cases of ulcerative endocarditis and acute rheumatism. It is now well recognised that in malignant endocarditis micro-organisms can practically always be obtained from the blood and that streptococci and pneumococci are those most frequently found. Moreover, the clinical distinction between these two diseases may be sometimes extremely difficult, and it is possible that in some of the cases where positive results have been obtained the disease was not acute rheumatism, but was malignant endocarditis.

Batley.

A CASE OF DUODENAL FISTULA CURED BY OPERATION.

BY R. LAWFORD KNAGGS, M.C. CANTAB.,
SURGEON TO THE LEEDS GENERAL INFIRMARY.

THE case of duodenal fistula reported below may advantageously be contrasted with two others recorded by Dr. Albert Ashton Berg of New York.[1] One of Dr. Berg's cases resulted from a cholecysto-duodenostomy for obstructive jaundice due to cancer of the pancreas, and the other followed an operation for perforated duodenal ulcer complicated by a localised peritoneal abscess. The method of treatment finally adopted in both cases was the performance of a gastro-jejunostomy and occlusion of the pylorus. The latter was produced by an encircling band, in one case of large-sized ligature silk, and in the other of tape only tied sufficiently tight to occlude the lumen but not to constrict the tissues. This plan does not seem to be free from the danger of ulceration of the tissues by the ligature, for it is impossible for occlusion to be produced by it without a certain degree of pressure. And, in fact, this occurred in the one case from which any conclusion could be drawn, but not to such an extent as to lead to disaster. Still, Dr. Berg believes the encircling ligature to be the best plan, and points out very truly that the infolding of the pylorus by superimposed rows of Lembert sutures, though possibly easy when the tissues are normal, is quite a different thing when the peritoneal surfaces of the viscera have become brittle and friable and fixed in inflammatory exudate. In the writer's case the pylorus was occluded by infolding in the manner suggested by Kelling (*vide* Berg's paper), except that no attempt was made to make a kink by suturing the end of the stomach to the first and second parts of the duodenum. That was impracticable owing to the thickness and firmness of the roll which was formed by the infolding, and further it appeared, and subsequently was proved, to be unnecessary.

As in other hollow viscera not completely invested by peritoneum a perforation of the duodenum may be either intra- or extra-peritoneal. The clinical features of the two forms are very different. As the following case shows, those of the extra-peritoneal form may be very misleading and a diagnosis may be impossible before the escape of duodenal contents puts the matter beyond doubt. On the other hand, intra-peritoneal rupture is attended by such marked and definite symptoms that it is usually recognised promptly and without difficulty. The treatment of a fistula resulting from extra-peritoneal perforation—if it refuses to close of its own accord—presents no particular difficulty if it is dealt with upon Kelling's plan, because the parts are healthy and aseptic; but it is only necessary to study Dr. Berg's cases to realise how hard it is to close a fistula when the parts are inflamed and softened and the field of operation is septic, conditions which are almost certain to be present when it is the result of an intraperitoneal opening.

A girl, aged 17 years, was admitted to the Leeds General Infirmary on Oct. 27th, 1906. Three months before her admission, under Dr. A. G. Barrs, she began to have attacks of sickness and diarrhœa and passed a little blood. The sickness came on after taking food and she would usually vomit once a day, but occasionally she would go for six or seven days without doing so. She also had pain which came on a quarter of an hour after a meal, lasted about an hour, and went away gradually. This condition persisted till the week before admission when she became worse. She had lost flesh.

On admission, nothing abnormal was found on examination of the abdomen and nothing definitely wrong in the chest, though a slight taint in the family history, nocturnal perspirations, and a rather rapid pulse suggested the possibility of tubercle. The urine was normal. At first the pain and sickness disappeared, though the patient was put upon ordinary diet, but about Nov. 7th she complained of pain in the right hypochondriac region, and the temperature rose and gradually assumed an intermittent type. On Dec. 12th a mass was noticed in the right loin, and the right knee was partially flexed and drawn up. On the 15th there was exquisite tenderness at the bottom of the right side of the chest. On Jan. 9th, 1907, under anæsthesia the swelling on the right side of the abdomen was hard and could be felt to disappear under cover of the ribs. It was largest just before it did so. Its boundaries were vague.

On Jan. 14th the patient was transferred to the surgical side where the condition was regarded as a subacute suppuration under the psoas sheath, producing flexion of the hip and lordosis. On Jan. 23rd an incision was made in the right loin through muscles that were very firm from inflammatory infiltration. An abscess was opened by manipulation with the finger through an indurated mass, and about an ounce of pus escaped and a drainage tube was inserted. On March 6th, drainage not being satisfactory, the resulting sinus was opened up, and owing to the disappearance of the induration a considerable cavity could be explored. It was still regarded as situated under the psoas fascia. On March 25th a portion of orange pulp was noticed on the dressings, and it was then realised that the curious odour of the discharge, which had been noticed for several days, was due to gastric fluids. There was no trace of bile or of fæces, but charcoal made its appearance on the dressings four hours after it had been taken. The patient remained an in-patient till April 16th, when the wound had contracted to the drainage-tube track, but there was still a considerable discharge having the peculiar odour just referred to, and in which evidence of fluid food was frequently observed. She was now sent home in the hope that the communication that existed with the stomach or duodenum would gradually close.

The patient was readmitted on June 13th. No alteration in the amount or character of the discharge from the sinus had taken place, and whenever charcoal was swallowed some of it came away from the sinus in from two to five hours. Occasionally bubbles of gas escaped and the patient stated that a "rush" of discharge would occur when she was actually masticating her food. On July 3rd the abdomen was opened. Considerable evidence of past inflammation was found in the neighbourhood of the duodenum. The adhesions which existed between the under surface of the liver, the duodenum, the pylorus, and the transverse mesocolon were numerous but not tough. Their separation before the duodenum could be examined caused some trouble. The only trace of ulcer that could be detected was at the pylorus on the posterior surface. The finger pressing upon the anterior wall felt to impinge upon a depression as big as a threepenny-piece. This part of the pylorus was moveable to a certain extent. The stomach was quite healthy. A posterior gastro-enterostomy was performed, and then the pylorus was infolded by two rows of Lembert sutures parallel to its long axis, about 1½ inches long—one over the other. In this way the pyloric end of the stomach was converted into a solid roll a little thicker than the thumb. After the operation the sour odour at once disappeared from the discharge and no more particles of food were ever seen. The next day bile, which had never escaped before, was mixed with the discharge and persisted for about a week, gradually diminishing. The patient left the hospital on August 20th, 1907, when the discharge from the lumbar sinus had diminished considerably. The charcoal test was now always negative. A small sinus persisted for a long time, but had finally closed in April, 1909. Her general condition after the abscess cavity was thoroughly drained was always satisfactory and for the last year or more she has been the picture of health.

Leeds.

[1] Annals of Surgery, 1907, vol. xlv., p. 721.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—On Oct. 8th the winter session of this society was opened by the presidential address delivered by Dr. Neville T. Wood entitled "The Selection of Patients for Spa Treatment."

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

CLINICAL SECTION.

Exhibition of Cases and Specimens.—Pneumonia with considerable Displacement of the Heart simulating Pleural Effusion.—Carcinoma of the Breast.

A MEETING of this section was held on Oct. 8th, Mr. A. PEARCE GOULD being in the chair.

Dr. J. L. BUNCH presented a case of Mycosis Fungoides in a man, aged 50 years, who noticed last October some scaly patches on his limbs which were itchy and irritable. These patches increased in size and looked like eczema, except that they were very sharply defined. The whole of the trunk and limbs became gradually involved in a diffuse superficial infiltration, the pruritus increased, and softish granulomatous tumours made their appearance. The largest was of typical fungating, mushroom-like appearance. The condition had improved under the following methods of treatment—an injection of a preparation akin to soamin, light treatment, and X rays.

Dr. H. D. ROLLESTON exhibited a case of Pigmentation of the Mouth in Pernicious Anæmia in a man, aged 25 years, who was admitted to hospital on July 19th, 1909 for diarrhœa, anæmia, and enlargement of the liver and spleen. There was marked freckling of the lower half of the face, especially around the mouth. The lower lip presented inky pigmentation along the line of contact towards the angles of the mouth. On the oral surface of the right cheek there were one large and four small pigmented patches, and on the mucosa of the left cheek there were two similar pigmented patches. Inquiry showed that the patient had not taken arsenic before admission. Dr. Rolleston said that that supported Dr. Hale White's contention that oral pigmentation occurred in pernicious anæmia independently of arsenical treatment. The patient had greatly improved since he was put on arsenic.—Dr. F. PARKES WEBER said that the pigmentation made him think that the case might be one of an incomplete form of xeroderma pigmentosum.

Mr. ALBERT CARLESS showed a man from whom he had removed both the upper maxillæ for so-called Fibro-cystic Disease or Epithelial Odontome. Mr. Carless was congratulated on the successful and satisfactory issue of his operative procedure, and Mr. PEARCE GOULD recalled the circumstances of a similar case in which both maxillæ had been taken away for carcinomatous disease.

Mr. JAMES SHERREN showed a Meckel's Diverticulum containing calculi removed at an operation on a man aged 38 years. The condition had produced symptoms of abdominal colic and the patient was said to have passed gall-stones in his motions. When admitted to the medical side of the hospital with a history of a sudden onset of pain in the right iliac fossa the pain was described as "grinding" in character, and was accompanied by vomiting. Mr. Sherren saw the patient shortly after another attack and advised operation. On May 16th he opened the abdomen in the right iliac region. On examination he at once felt a bladder full of stones. On bringing it outside the abdomen its nature was at once evident. The diverticulum sprang from the antimesenteric border of the ileum, at its commencement being the same size as the ileum from which it sprang, dilating at its free extremity. The termination of the superior mesenteric artery ran in a fold of peritoneum along its anterior surface. It was quite free from adhesions. The specimen measured in the recent state four inches in length and was partially closed an inch from its attached end by a valvular fold of mucous membrane. Below this point it was filled with irregular brownish calculi which were very brittle. Analysis showed them to be composed of cholesterin, bile pigments, and calcium oxalate.

Dr. E. I. SPRIGGS showed a case of Infective Rheumatoid Arthritis with Enlargement of Glands and Spleen. The patient was a male, aged 16 years, a farm labourer. The trouble began at the age of ten years with painless enlargement of the proximal joints of the fingers, followed by swelling of the ankles, elbows, and wrists. There was no pain for two years and he was able to continue his work. On admission to hospital four weeks back the lad looked ill; his pulse ranged between 92 and 104, and his temperature rose to 99·5° F. in the evening. The interphalangeal joints, both distal and proximal, of the fingers and thumbs were red and enlarged, but the redness had now disappeared. The elbows, wrists, knees, and ankles were uniformly enlarged. The lymphatic glands were enlarged, soft, and discrete in the axillæ; the epitrochlear gland was about the size of a hazel-nut on each side; the glands in the groins were enlarged, as also some placed deeply above the clavicles. The spleen extended about an inch below the left costal margin.—Dr. A. E. GARROD referred to the cases described as Still's disease, and said that similar cases did occur but more rarely in adult life, the difference in the clinical picture affording examples of the influence of age on a type of disease.—Dr. ROLLESTON had seen a case at Cambridge in an adult similar to the case of Dr. Spriggs before Dr. Still had brought forward his cases.—Sir DYCE DUCKWORTH said that those cases of Dr. Still were possibly a blend of struma with the so-called arthritic or rheumatic habit of body.

Dr. G. A. SUTHERLAND showed a case of Flexor Spasm in a girl, aged five years. In June last the left hand was noticed to be held in a cramped position and not used. Two days later the child had a sort of fit, becoming faint and of a dusky colour, but did not lose consciousness. There was found on examination to be flexion of the fingers of the left hand into the palm. The ring and middle fingers were chiefly affected; the others could be easily extended and even hyper-extended by passive movement. If one straightened out forcibly these two fingers the wrist at once became strongly flexed; if the fingers and wrist were straightened the elbow became flexed. The hand was usually deviated to the ulnar side. The grasp of the left hand was good. There was no alteration in the reflexes or electrical reaction. The condition had persisted unchanged. The contraction was not absent during sleep nor under an anæsthetic.

Sir DYCE DUCKWORTH exhibited photographs of a case of Gout, with large Tophaceous Deposits, in a Mahomedan. The notes of the case had been furnished to him by Captain H. H. G. Knapp of the Indian Medical Service. Sir Dyce Duckworth remarked that patients with much uratic deposit were generally classed as examples of atonic gout. Sometimes enormous deposits of urate occurred without any pain whatever. The condition of the urine might give no indication of progressive renal fibrosis, but it might contain sugar and in course of time a diabetic cachexia ensued in some of these patients.

Sir DYCE DUCKWORTH also gave details of a case of Gout with Uratic Tophi in a boy aged 14 years. He was indebted to Dr. H. Aldersmith, medical officer of Christ's Hospital, for the particulars of the case.

Dr. H. W. BAYLY gave a demonstration of the Treponema Pallidum in Syphilitic Lesions; of the Spirochæta Dentium in Carious Dentine; and of the Spirochæta Refringens in Balanitis.

Dr. W. P. HERRINGHAM read a paper on two cases of Pneumonia with considerable Displacement of the Heart simulating Pleural Effusion. He said that pneumonia was diagnosed partly by the physical signs and partly by the symptoms which it presented. If these were typical the diagnosis was easy. But in a large number of cases they were not. It was the physical signs that varied most, and in consequence the diagnosis had frequently to be made chiefly on the symptoms. But though it was comparatively common for the vocal vibrations to be absent, for the percussion note to be almost, if not quite, as flat as that of pleural effusion, and for the breath sounds to be weakened instead of undergoing the changes typical of pneumonia, it had never been his lot until the present year to observe along with these variations from the type such a displacement of the heart as would confirm the diagnosis of pleural effusion, though such displacement was not, of course, unknown.

Dr. N. S. FINZI and Mr. ERNEST H. SHAW communicated a further report on a case of Carcinoma of the Breast treated by Radium. The specimens which they exhibited were from a case of carcinoma of the breast shown to the Royal Society of Medicine on May 14th, 1909. The patient was a woman, aged 78 years, who had her breast removed by operation in 1906. The disease recurred beneath the scar and the axillary glands became enlarged. It was then treated with

X rays with temporary improvement. On March 10th and 12th, 1909, she was given two long exposures to the rays of 50 milligrammes of radium bromide filtered through a thin silver tube. This was followed by another exposure on April 29th, 1909, a screen of lead 1 millimetre in thickness being used in addition to the silver. The first two exposures were excessive and caused small but troublesome burns. The tumour and enlarged glands, however, disappeared and at the time of her death were not palpable. She was admitted to the German Hospital with a strangulated umbilical hernia and died on July 13th. At the post-mortem examination the whole of the mammary and axillary subcutaneous tissues was removed together with the portion of skin affected by the burns. The sites of the breast tumour and axillary swelling were seen to be occupied by two thin irregular sheets of fibrous tissue; no definite nodule of growth could be distinguished in the fibrous masses, but at the edge of the larger mass two small ovoid bodies about 1 centimetre in length were found which felt like pieces of hardened fat. There was no sign of any growth in the mediastinum, but there were several nodules about 1·5 centimetres in diameter in the liver. There were two whitish raised patches about 1 centimetre in diameter in the mucous membrane of the stomach. The kidneys, spleen, and other organs appeared to be normal. Dr. Finzi and Mr. Shaw considered that the microscopical sections they showed admitted of two interpretations: one, that most of the cells of the growth disappeared as the result of the radium treatment, but a few remained and afterwards began to multiply, some of them passing on to the lymphatic glands and liver; and the other that the growth was still being absorbed locally at the time of the patient's death. They thought that in favour of the first suggestion were the facts that the carcinoma cells, which were thickly packed in the fibrous tissue, were well stained and were "creeping" along, as it were, the fibrous septa into the surrounding fat; here they were not surrounded by fibrous tissue. Also the growth in the lymphatic glands was apparently recent, and there was no thick fibrous tissue. The liver nodule also had very little fibrous tissue between the cells. Dr. Finzi and Mr. Shaw believed that if further treatment had been given it might have completed the process of absorption of the growth. The condition of the skin due to the burns, however, rendered further treatment inadvisable.

MEDICAL SOCIETY OF LONDON.

Presidential Address.—Perforation of the Small Intestine.

A MEETING of this society was held on Oct. 11th, Dr. SAMUEL WEST, the President, being in the chair.

The PRESIDENT delivered his address, which is printed in full on p. 1121.

Mr. HUGH LETT read a paper on two cases of Perforation of the Small Intestine. The first case was that of a woman, aged 54 years, who was admitted to the London Hospital on August 4th, 1906. Two days previously she was suddenly seized with severe pain in the upper half of the abdomen, followed by vomiting. She had suffered from dyspepsia for years, but had never had hæmatemesis. On admission the abdomen was distended, and moved only slightly on respiration; on palpation it was tender and resistant, especially on the left side in the upper half. The tongue was dry, the pulse was 120, and the temperature was 102° F. Perforation of a gastric ulcer was suspected, and laparotomy was performed. An incision was made through the upper half of the left rectus close to the middle line. When the abdomen was opened gas escaped, and the diagnosis of general peritonitis was confirmed. 18 inches beyond the duodenojejunal junction of the jejunum a small perforation was found, situated on the free border of the intestine, away from the mesentery. The wall of the intestine was thickened and infiltrated round the perforation. This was closed by a continuous suture placed transversely to the long axis of the intestine, and was finally covered in by a second continuous suture. A quantity of pus was discharged from the wound for some days after the operation, but the patient ultimately recovered. Mr. Lett thought that the cause of the thickening and perforation of the intestine was obscure. It could hardly have been carcinomatous, for the appearance was not in the least suggestive of carcinoma. Nor was it probable that the condition was one of sarcoma. Tuberculous ulceration was, of course, possible, but improbable. The diagnosis of typhoid ulceration could not be entertained owing to the fact that the patient had been in her usual health until the time of perforation, also that such induration as occurred was not met with in typical typhoid ulcers. Besides, if the patient had recently been operated upon for gastric or duodenal ulcer, and a gastro-enterostomy had been performed, there would have been no hesitation in describing the case as one of perforation of a peptic ulcer of the jejunum. In 1906 Gosset collected no less than 31 cases in which ulcers developed in the jejunum after this operation. In the last edition of Nothnagel, E. Wagner is quoted as having found an ulcer in the jejunum which resembled a duodenal peptic ulcer in a patient upon whom gastro-enterostomy had not been performed. Peptic jejunal ulcers might perhaps exist apart from gastro-enterostomy, and if so it was possible that the case described might be correctly considered one of a perforated peptic jejunal ulcer. The second case was that of a man, aged 45 years, who was admitted to hospital on June 26th, 1907. 15 hours before admission he had a sudden attack of severe abdominal pain; this was accompanied, or shortly followed, by a shivering fit, the temperature rose to 104° F., and the patient vomited several times. He stated that he had not felt well for five weeks. He presented an emaciated appearance and looked ill. The tongue was dry and red, the pulse was 110, the respirations were 40, and the temperature was 101°. The abdomen was uniformly rigid and painful, and hardly moved on respiration. Laparotomy was performed by an incision in the right iliac fossa. There was general inflammation of the peritoneum, and its cavity contained purulent inoffensive fluid. A small perforation was found in the ileum two inches from the ileo-cæcal valve; there was no induration of the intestine round the perforation and the wall appeared to be rather thinner than usual. The perforation was closed by invaginating the gut transversely and inserting two layers of interrupted Lembert sutures. A tube with a gauze wick was passed into the pelvis and the wound otherwise was closed. The patient made an uninterrupted recovery. A large amount of inoffensive pus escaped from the abdomen for the first few days, but the tube was removed two and a half weeks after operation. The case was considered to be one of ambulatory typhoid fever with perforation. When the abdomen was opened three facts were discovered. The first was that the peritonitis was due to perforation of the small intestine. The second fact was that this perforation was situated in the neighbourhood of the ileo-cæcal valve, where the great majority of perforations in typhoid fever are found. Thirdly, not only was the intestinal wall in the neighbourhood of the perforation free from any induration, but it also felt unusually thin for some distance above. The history of malaise and drowsiness during the preceding five weeks and the emaciated condition of the patient seemed to confirm the diagnosis. On the other hand, the serum agglutination test, which was carried out five days after the operation, was attended with a negative result. Taking the case as a whole, the diagnosis of ambulatory typhoid fever with perforation appeared to be the most probable one. Mr. Lett thought that the question of the pathology of the perforations in the two cases was of great interest.

A discussion ensued in which the following took part: the PRESIDENT, Mr. V. WARREN LOW, Dr. F. DE HAVILLAND HALL, Dr. C. S. DE SEGUNDO, Mr. T. H. KELLOCK, Dr. A. F. VOELCKER, and Dr. H. DANVERS, after which Mr. LETT replied.

MEDICO-CHIRURGICAL SOCIETY OF GLASGOW.—The first meeting of the session of this society was held on Oct. 1st, when Professor Robert Muir delivered his presidential address, taking as his title "The Doctrine of Inflammation." He pointed out that confusion and inaccuracy prevailed both in pathological and in clinical work owing to the want of a generally accepted definition of the term. He briefly sketched the history of the subject, indicating the different points of view from which inflammation had been regarded. Increased knowledge of the histological changes and of the nature of the causes of inflammation supplied by bacteriology had not removed the difficulty. The views of writers on pathology were compared. Some regarded inflammation as essentially defensive; others as in the main

the result of damage; others stated that it is a complex process incapable of definition; some included reparative processes under the term; others excluded them. He stated that the chief reason for the difficulty in obtaining agreement amongst authorities was the fact that inflammation is not a single process but represents a collection of processes which differ in nature. In considering this statement he took the meaning of the term "process"—i.e., a biological process, to be a succession of changes more or less similar in object. The physiological processes were divided into two great classes: (1) the functional, in which living matter was broken down; and (2) the nutritional and formative, these corresponding respectively to the katabiotic and bioplastic of Weigert. These are essentially different in nature and they are found together often in inverse proportion to each other at different periods of life and under varying circumstances. The pathological processes closely correspond, with the addition of one great class, thus: (A) retrogressive processes—necrosis, degenerations, &c., the direct result of damage; and (B) reactive or progressive processes—defensive and reparative—including (*a*) increased functional activity—e.g., phagocytosis; and (*b*) increased formative activity, proliferation of cells, &c. The phenomena of acute inflammation were then analysed according to this scheme. The slowing of the blood stream, stasis, and diapedesis of red corpuscles must be regarded as directly due to damage done to the capillary endothelium. Until the nature of lymph formation is satisfactorily settled a decided opinion cannot be expressed with regard to the exudation, but most of the facts point to its being the result of damage to the vessel wall. As to its results, these are in part beneficial, in part harmful. Practically all are agreed that the migration and subsequent movement of leucocytes, and the phagocytic and secretory properties of these cells, constitute a defensive process—increased functional activity. Phagocytosis by endothelial and connective tissue cells is to be similarly regarded. Proliferation of these cells was also discussed. The general result of such an analysis is that there is a multiplicity of processes of different nature. Phagocytosis by leucocytes and other cells may in a sense be regarded as the most important phenomenon, but if so it has no relation to any of the cardinal symptoms of inflammation. When we come to consider the subacute and chronic processes the difficulty increases. The presence of certain parasites produces, in addition to a leucocytic reaction, proliferation of connective tissue cells and the formation of new blood-vessels: in other words, leads to the formation of granulation tissue similar to that seen in the healing of wounds. Is this process in the two cases to be considered the same in nature or of two kinds? It is unjustifiable to extend the term "inflammatory" to the healing process which essentially depends upon breach of continuity of the tissues—that is, a variety of regeneration. Inflammatory proliferation *may* be the result of damage—i.e., reparative, and not the effect of direct stimulation, but this is not proved. It is better to speak of it simply as being the result of irritation; whether this acts directly or indirectly must be left an open question. In any case the use of the term "inflammatory" serves no useful purpose. The same holds true with regard to the fibroses. Some are due to continued mild irritation, some are simple replacements, and some are of functional significance, but whether they are inflammatory or not depends entirely upon the definition. The necessity for analysis is equally great in connexion with the treatment of inflammation. In this connexion, again, inflammation is not to be regarded as a process: treatment is not directed towards it as a whole. Each therapeutic measure is applied to some part of the complex, and is so applied according as to whether the process in question is to be checked or encouraged. Various methods of treatment were considered in this relationship. The general conclusion arrived at was that it is impossible to define inflammation and at the same time to maintain its relations to the recognised cardinal signs. It should only be used as a convenient, though somewhat indefinite, clinical term, and its use in matters of discussion should be avoided.

BRIGHTON AND SUSSEX MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Oct. 8th.—Mr. R. F. Jowers showed a case in which Facial Paralysis, following on a radical mastoid operation within a few hours, was successfully treated by facial-accessory nerve anastomosis. The operation was performed three months after the mastoid was treated.—Dr. W. Broadbent showed a woman suffering from Myxœdema; she improved greatly with thyroid treatment and relapsed directly she omitted it.—Mr. H. H. Taylor showed a girl with Rupture of the Choroid from a blow on the eye with a piece of wood and a case of Primary Optic Atrophy in a man the subject of early locomotor ataxia.—Mr. G. Morgan showed (1) a case of Hypertrophy of the Right Breast in a male child, two years old; and (2) a case of Ganglion of the Biceps Tendon of the arm in a young woman. He also read the notes of a case of Unusual Gland Disease. A more or less universal swelling of the glands occurred in a male, the case presenting all the appearance of Hodgkin's disease. However, it all cleared up with fresh-air treatment, and the diagnosis therefore remained uncertain. It was suggested it might, in spite of the number of glands affected, have been tuberculosis.—Mr. A. G. Bate read the notes of a case of Amputation at the Hip-joint on a man, 73 years of age, who had suffered from Tuberculous Necrosis of the Femur for 60 years and had had numerous operations. The result was quite satisfactory.—Dr. E. Hobhouse showed a Sarcomatous Liver, weighing 72 ounces, from a child aged six years; also (for Dr. J. F. Gordon Dill) a specimen of Lympho-sarcoma of the Spleen in a young man. He also read a paper on Recent Advances in our Conceptions of Heart Disease, for which a vote of thanks was accorded by the society.

Reviews and Notices of Books.

Bulletin of the Committee for the Study of Special Diseases. Edited by T. S. P. STRANGEWAYS, M.R.C.S. Eng., L.R.C.P. Lond., "Huddersfield" Lecturer in Special Pathology in the University of Cambridge. Vol. II. Published by the Committee and printed at the University Press, Cambridge. Pp. 179. Price 21*s.* net.

THIS number contains the report of the committee for the year 1907, which has been delayed in order that an account might be given of work begun in that year but only recently completed. The following papers and monographs are appended: 1. The Arterial Blood-pressure in Arthritic Diseases, by Dr. J. Lambert. The results of sphygmomanometric observations by means of Dr. G. Oliver's instrument in the various forms of rheumatoid arthritis, gout, and in toxic varieties of chronic joint lesions are recorded. It is stated that the pressures in the acute and subacute forms of progressive rheumatoid arthritis are subnormal or normal, in the chronic progressive form normal, and in the senile high and often supernormal. In acute and subacute gout the pressures may be normal or subnormal, due allowance being made for the age of the patient and for the duration of the disease. Hyperpiesis is met with in cases of arthritic gout. The pressure in chronic tophaceous gout is higher than in the other forms. Low pressure is often met with in cases of toxic arthritis, such as gonorrhœal, rheumatic, tuberculous, and septic forms. Senile osteo-arthritis and osteitis deformans are generally associated with raised pressures. A bibliography and some charts are appended. 2. A Report on Some Points in the Etiology and Onset of 195 Cases of Rheumatoid Arthritis, by Dr. J. Lambert. The family history, civil state, sex, age at onset, nature of onset, the first joint attacked, and the association with other diseases were considered in relation to the disease. An extension of this report deals with the family history and clinical features of 125 cases of gout. In the same report is included a paper by Dr. James Lindsay on the relation of infective foci to rheumatoid arthritis. It deals with 172 cases of rheumatoid arthritis, of which 138 were females and 34 males. The striking result was found that a definite source of infection preceding the disease was recorded in 73 females and 15 males, an association which Dr. Lindsay regards as due to more than coincidence. 3. The Ophthalmic Reaction: Some Observations on 10,000 Collected

Cases, by Mr. Constant W. Ponder. On the basis of his own observation of 97 cases and of cases recorded in the literature Mr. Ponder concludes that the test must depend upon some specific reaction, but that in view of the marked variability in the hands of different observers there must be some factor or factors which often falsify the results obtained, and that until the nature of this has been determined the test can only be relied upon to give a somewhat broad opinion rather than a decisive diagnosis. Appended to this report is a note on the conjunctival reaction to tuberculin in arthritic diseases by Mr. T. S. P. Strangeways. The observations were undertaken in view of the description by Poncet of "rhumatisme tuberculeux." The reaction was tested on 340 cases of arthritis of a type clinically non-tuberculous. A positive reaction was obtained in 210, or 62 per cent. of the cases. Six of the cases subsequently came to necropsy, but the results were such as to throw doubt on the value of the reaction. 4. Report on a Case of Hypertrophic Pulmonary Osteo-arthropathy, by Mr. Strangeways and Mr. Ponder. The condition was associated with an intrathoracic malignant growth, described as an endothelioma. Full details are given of the clinical history and of the post-mortem appearances as well as excellent skiagrams. 5. Observations on Purin Metabolism, by Dr. H. Ackroyd. As a result of a laborious research regarding the variations of the endogenous and exogenous purin excretion in healthy persons and in cases of rheumatoid arthritis he finds that there is no important change in the purin metabolism in persons suffering from this condition. An acute or subacute attack is accompanied by an increased purin metabolism in some cases, but not in all.

The scientific study of special diseases in the manner carried out by the committee is one which is worthy of every encouragement, and the laborious work entailed is bound to yield useful practical information eventually. We have nothing but praise for this volume.

The Law of Compensation for Industrial Diseases. By EDWARD THORNTON LAWES, M.A., B.C.L., of Lincoln's Inn and the Western Circuit, Barrister-at-law, Recorder of Salisbury. London: Stevens and Sons, Limited. 1909. Pp. 306. Price 7*s.* 6*d.*

THIS book is described in an explanatory sub-title as "an annotation of Section 8 of the Workmen's Compensation Act, 1906, with chapters upon the powers and duties of certifying surgeons and medical referees, and the rules, regulations, and forms relevant thereto, and including a special treatise upon every disease to which the Act now applies, together with the special rules or regulations made under the Factory and Workshop Acts for the prevention of such diseases." *Tempora mutantur*, and of the changes wrought in our social conditions during recent years this work serves as a notable reminder. If we can imagine a common-law barrister or a manufacturer to have dropped asleep 30 years ago in his chambers or his counting houses and to have been awakened by the descent of Mr. Lawes's volume upon the table beside him, we may go further and try to picture his bewilderment on turning over its leaves. It contains more than 300 pages of statutes, regulations, forms, and explanatory comments upon a subject entirely new to him, the Rip Van Winkle of the law courts or the merchant's office. Whether it be the lawyer or the employer whom we have conjured up, he has been familiar with the doctrine of "common employment" and the principle involved in the words "*volenti non fit injuria.*" He has probably looked upon them as bulwarks of defence likely to outlive the Magna Charta, and upon industrial disease as the inevitable risk undertaken by the worker in consideration of the wage paid to him. He awakes to find that an "Employers' Liability" Act dealt the first blow at the position once impregnable, and that successive statutes providing for "Workmen's Compensation" have followed up the attack, each widening the breach made by its predecessor, and all alike denying to master and man the liberty to contract out of their respective liabilities and rights. He then proceeds to realise that not only are "accidents" to workmen, as he understands the word, the subject of compensation, but that a large number of industrial diseases are treated by the law as "accidents." He may at first be inclined to think that this novel development of the meaning of a familiar term lays an undue burden upon employers, but perhaps as he reasons the matter out he will come to the conclusion that the obligation to compensate for disease is less likely to imply injustice than are many claims arising out of alleged accidents of the more familiar class. The industrial disease is more readily traceable to a preventable origin, and produces, as a rule, symptoms more independent of the verbal statement of the sufferer and less likely to be feigned or exaggerated than the supposed strain or concussion. This volume contains rules which the employer must observe if he is employing men in a dangerous trade, the breach of which will render him liable to legal proceedings apart from any immediate result which his conduct may bring about. It also contains an account of the dangerous processes, and of the pathology and symptoms of the diseases arising from them. This introduction of details of manufacture and medicine into a legal text-book is new to us, and at first sight seems out of place, but we are bound to say that the combination of professional wisdom produces a practical guide to the subject. We note in this connexion that the author has compiled this portion of his work from authoritative sources, and that he acknowledges valuable assistance from Dr. B. A. Whitelegge, Chief Inspector of Factories, and Dr. T. M. Legge.

To lawyers, to employers in dangerous trades, and to medical men as medical referees or certifying surgeons, or, indeed, in any other capacity, we have no hesitation in commending Mr. Lawes's volume.

Tuberculin in Diagnosis and Treatment. By Dr. BANDELIER, Senior Physician to Dr. Weicher's Sanatoria for Pulmonary Disease in Görbersdorf, and Dr. ROEPKE, Medical Director of the Sanatoria for Railway Employees in Melsungen. Translated from the second German edition by EGBERT C. MORLAND, M.B., B.Sc. Lond., M.D. Berne. London: John Bale, Sons, and Danielsson, Limited. 1909. Pp. 182. Price 7*s.* 6*d.* net.

THIS work is designed as "a text-book of the specific diagnosis and therapy of tuberculosis for practitioners and students." It gives a good picture of the position of tuberculin in German medical practice at the present day. Discretion was given by the authors to the translator (Dr. Morland) to add material suitable for an English edition. We think, however, that he came to a wise conclusion when he decided simply to render the book into English, as he considered the time not yet ripe for a judgment on the methods of vaccine therapy now obtaining in England — methods largely arising from Sir Almroth Wright's brilliant researches into the mechanism of immunity.

The first portion of the work is devoted to a consideration of the specific diagnosis of tuberculosis by means of tuberculin; the cutaneous, percutaneous, conjunctival, and subcutaneous methods are described and criticised. In describing the cutaneous reaction the authors express the opinion that the diagnostic certainty of the test is extraordinarily great. They state that if the cases at death's door are excluded, the percentage in the various stadia of

the disease varies within such narrow limits that it may be held to be a constant. They quote von Pirquet's statistics, which showed that 97 per cent. of the positive reactions exhibited undoubted naked-eye appearances of tuberculosis at the necropsy, whereas all the children who were found on the table to be free from tubercle had given a negative reaction. The subcutaneous method is held in this work to be *par excellence* the diagnostic agent for the detection of early pulmonary tuberculosis in adults. Its value is considered to be increased by the fact that in a high percentage of subcutaneous tests focal reactions make their appearance and allow a conclusion as to the site of the tuberculosis in the lung.

In the second portion of the book the specific treatment by tuberculin of pulmonary tuberculosis is first discussed, and an interesting account is given of the results which have been achieved in Germany. It has recently been proved that minute doses of tuberculin, such as $\frac{1}{10000}$th of a milligramme, and even smaller, produce decided effects, but Dr. Bandelier and Dr. Roepke maintain that such small doses are inadequate, basing their opinion on the view that the action of tuberculin rests partly on a systematically acquired tolerance, a gradually acquired immunity to the toxin. They therefore argue that the aim in the use of tuberculin should be to reach the maximum dose, and in some of their cases as much as 1000 milligrammes were given in one dose. We do not consider that the cases they record are convincing, inasmuch as they were all afebrile at the time the treatment was commenced. That no reaction should occur after such a large dose as that mentioned above is certainly interesting, but judging by clinical tests excellent results are obtained by the more simple methods of treatment during the afebrile stage, although we admit that we should not care to submit cases of apparently complete arrest to such heroic tests. The authors' remarks on the results of treatment by tuberculin are confusing, inasmuch as they distinguish between "cure" and "improvement." In the present state of knowledge the use of the word "cure" in connexion with pulmonary tuberculosis is of doubtful wisdom, and the term "arrest" is preferable. That the authors themselves saw the difficulty is shown by the following statement: "Definitely progressive forms of disease need not be considered for tuberculin treatment, nor is much to be expected in the case of advanced processes, where much destruction of lung tissue has taken place." Yet two pages further on we read: "Based on our own experience, we should say that, setting aside the severe incurable forms of consumption, especially cases of severe mixed infection with pyrexia, every uncomplicated case of pulmonary tuberculosis may be submitted to the mild method of tuberculin injection, avoiding as far as possible all reaction." The first quotation applies to the possibility of "cure," the second to the possibility of improvement, relief, or "arrest" of the disease. The results obtained by several observers in this country point in the direction of the advisability of small doses given in accordance with the temperature chart, and would therefore more nearly accord with the second of the above opinions. It will be a matter of interest to watch further researches in this matter; it is only by increased experience and watching the cases over long periods of time that any definite conclusions can be arrived at as to the most advantageous methods of administering tuberculin as a therapeutic measure in cases of pulmonary tuberculosis.

The treatment of tuberculosis of other organs than the lungs by means of tuberculin is then discussed and favourable results are claimed in cases of tuberculous peritonitis. The whole work is well worthy of attention. The true value of tuberculin has not yet been established, but the results hitherto obtained are decidedly encouraging, and there is every hope that the issue of the large amount of clinical work now being done on the subject will be in accordance with these good promises.

The Open-air Treatment of Pulmonary Tuberculosis. By F. W. BURTON-FANNING, M.D. Cantab., F.R.C.P. Lond., Physician to the Norfolk and Norwich Hospital; Honorary Visiting Physician to the Kelling Open-air Sanatorium. Second edition. London: Cassell and Co. 1909. Pp. 184. Price 5*s.* net.

DURING the four years that have elapsed since the publication of the first edition of this book the principles of the open-air treatment have become more universally accepted and new elements have been introduced dependent upon our more advanced knowledge in acquired immunity. Dr. Burton-Fanning has brought his little work fully up to date, and has studied with an open mind the latest researches which have a bearing on his subject. A good and detailed account is given of the daily routine to be followed in carrying out the open-air treatment, especial emphasis being laid on the deductions which may be drawn from the temperature chart. We agree with the author in maintaining that for all clinical purposes the oral temperature may be relied upon, so dispensing with the inconveniences inseparable from taking the rectal temperature. The transitory rise of temperature which occurs after exercise in healthy individuals may only be detected in the rectum, and if the mouth temperature be relied upon such a rise may not be detected; a persistent elevation of temperature after exercise, however, such as is sometimes seen in tuberculous individuals, has altogether a different significance, and if an interval of half an hour be allowed the mouth may be depended upon for its recognition.

The recent observations which have been made on the opsonic index in relation to tubercle are fully discussed, and the important part which auto-inoculation has been shown to play in patients suffering from active tuberculosis is explained in detail. The system of graduated labour, which has been fully described in our columns, is favourably commented on. Dr. Burton-Fanning considers that this method is the best introduced in the case of "afebrile consumptives." Those of our readers who wish to consult a short work in which the chief points in the open-air treatment of pulmonary tuberculosis are ably and clearly described and discussed cannot do better than refer to this book.

Blackwater Fever (Bilious Malignant Tertian Ague). By A. G. NEWELL, M.D. Glasg., D.P.H. Camb. London: John Bale, Sons, and Danielsson. 1909. Pp. 127. Price 5*s.* net.

THIS little book has been prepared to set out the views of its author on the condition known as blackwater fever. Dr. Newell has practised his profession for some nine years or more in highly malarious districts of India, more particularly in the Duars, where blackwater fever is often met with, and where, our readers may remember, Captain S. R. Christophers, I.M.S., and Dr. C. A. Bentley carried out their well-known investigations which were published in No. 35 of the "Scientific Memoirs of the Medical and Sanitary Departments of the Government of India," reviewed in THE LANCET of Feb. 20th of this year. The author claims, therefore, to know something of blackwater fever, the more so since he has had an attack of the disease himself. His views briefly are based on the consideration that "in every case of blackwater fever there will be found antecedent to it malaria, an attack of malignant malaria fever, and a congested liver." The disease, therefore, in his opinion is simply malignant tertian malaria with a superadded biliary condition by which the already congested liver is unable to deal with the destroyed blood corpuscles and the hæmoglobin;

consequently nature, to relieve the liver, excretes the hæmoglobin by other organs—namely, the kidneys; hence the hæmoglobinuria. He therefore formally defines blackwater fever to be "an acute complication of hæmoglobinuria occurring in a patient affected with the malignant tertian parasite of malaria, in whom congestion of the liver has proceeded so far as to incapacitate the liver from dealing with the destruction of red-blood corpuscles, and hæmoglobin emitted therefrom, and which congestion and inactivity of the liver might be exaggerated by a sudden chill or sudden dosage of quinine." Dr. Newell urges that the name "blackwater fever" should be abolished, and the term "bilious malignant tertian ague" substituted. The author takes a somewhat sanguine view of the prognosis in cases of blackwater fever, for under the paragraph headed Mortality he adds "there should be none. The disease is preventable. If taken early judicious treatment should save all." Of the total 127 pages comprised in the book 42 are devoted to the author's arguments in favour of his "theory" respecting blackwater fever; 40 pages are given to the clinical details of some five illustrative cases, while 45 are given to the appendices, which include particulars of laboratory methods for staining films and identifying malaria parasites, the anatomy of mosquitoes, the pharmacology of quinine, preventive measures against blackwater fever, and a variety of other matters. As frontispiece to the book is inserted a photograph of a boy in an advanced state of emaciation from kala-azar who was under Dr. Newell's treatment as a patient. There is evidence suggesting that the book has been somewhat hurriedly prepared for the press. On the title page it is stated that Dr. Newell is editor of *Indian Public Health*, and this makes it more surprising that certain terms and expressions should have been allowed to pass uncorrected. For instance, it is unusual to find in a medical work the term "off his feed" when the writer is signifying that the patient has anorexia; and objection may well be taken to the employment of the popular phrase "a chill on the liver" in a book intended for medical and scientific readers.

LIBRARY TABLE.

Essentials of Medicine: a Text-book of Medicine. By CHARLES PHILLIPS EMERSON, M.D., late Resident Physician, the Johns Hopkins Hospital. Illustrated by the Author. London and Philadelphia: J. B. Lippincott Company. Pp. 383. Price 8*s.* 6*d.*—This work, which is written in popular, rather than in strict scientific, phraseology, is intended "for students beginning a medical course, for nurses, and for all others interested in the care of the sick." The various organs of the body are considered seriatim, and a brief account is given of the physiology of each, and the principal morbid conditions which may affect them. Students may find it useful when first entering upon the study of medicine after having passed the preliminary examinations in anatomy and physiology. Nurses also who desire to take an intelligent interest in their work will find much that will be useful to them by studying Dr. Emerson's remarks, and will not be needlessly encroaching on those matters which concern only practitioners of medicine. The book will serve as an introduction to the more detailed text-books on pathology and clinical medicine.

Infant Feeding by Artificial Means. By S. H. SADLER. Third edition. London: George Routledge and Sons, Limited. New York: E. P. Dutton and Co. 1909. Pp. 253. Price 3*s.* 6*d.*—It would, in our opinion, have been wiser to allow this little book on infant-feeding to remain in obscurity. At no time did it serve any useful purpose, much less does it do so at the present moment when a large section of the intelligent public take the subject with which it deals with a considerable amount of seriousness. The preceding edition was published in the year 1896. Since that date infant-feeding has been reduced if not to an exact science, at least to a scientific art, but the third edition of Mrs. Sadler's work, which lies before us, is merely a reprint or republication of the crude and inexact compilation of 1896. We have compared the two editions carefully and we detect no differences, except that in the present edition there is a six-page appendix, the first half of which is a digest of an article from the pen of Sir Almroth Wright published in THE LANCET of July 22nd, 1893—which certainly ought to have been included in the last edition, while the second half is an article on "The Modern Use of Asses' Milk in Infant Feeding." This article is no ornament to the book; it is written by M. Nicolas Riotte, "Fournisseur des Hôpitaux," and in spite of the fact that the directness of the appeal is somewhat mitigated by the elegance of the original French, it is little less than a commercial advertisement of the milk he furnishes to the hospitals. The reader would no doubt appreciate an explanatory note on the statement that "asses' milk is of a very volatile nature" and always should be given to the infant immediately it is taken from the ass. Returning again to the body of the text which has been reprinted or republished, we cannot help drawing attention to the undesirability of there appearing in the pages of a book which is intended to instruct the ignorant an illustration and a description of a "tube-bottle"; if this was an offence in 1896, it is almost a crime in 1909. Mrs. Sadler says, "almost all medical men are against using cream diluted with water" as an exclusive diet for an infant. Surely this was not true even in 1896? Had we not considered this little book likely to prove a most dangerous instrument of instruction in the hands of a young and ignorant mother we should have hesitated to emphasise defects in the work which are obvious to anyone acquainted with the rudiments of infant-feeding.

The Prodigal Father. By J. STORER CLOUSTON. London: Mills and Boon, Limited. 1909. Pp. 303. Price 6*s.*—Mr. Storer Clouston has again written a thoroughly amusing story. To the end of his career he may suffer from the great and well-deserved success of "The Lunatic at Large," because his readers will always compare whatever he does with that drollest of stories, and will be trying him by a standard which any author must always have difficulty in reaching. Frankly, we do not consider that "The Prodigal Father" is as funny as "The Lunatic at Large," because the means employed to produce the farcical situations call for too much credulity from the reader, while in the earlier book the wildest extravagances of the charming maniac and his absurd German friend could be believed in without demanding us also to believe in the suspension of ordinary physical laws. "The Prodigal Father" is the story of a parent who underwent unorthodox medical treatment which had the effect of making him grow younger, the transformation taking place gradually, and not suddenly as in the classic case of Mr. Bultitude. A number of absurd situations are produced, but Mr. Clouston's protagonist, unlike Mr. Bultitude, is always on the winning side. He undergoes no humiliations, he triumphs successfully in some tight social places, and having started on the first page as a respectable merchant of advanced middle age, is found on the last page requesting to be sent to a good school. We congratulate Mr. Clouston upon his wit and high spirits, and recommend the book to our readers as a diversion and not as a therapeutical note.

JOURNALS AND MAGAZINES.

The Quarterly Journal of Microscopical Science. Edited by Sir RAY LANKESTER, K.C.B., F.R.S., with the coöperation of ADAM SEDGWICK, M.A., F.R.S., SYDNEY J. HICKSON,

M.A., F.R.S., and E. A. MINCHIN, M.A. With lithographic plates and text figures. New Series, No. 213 (Vol. LIV., Part I.). London: J. and A. Churchill. 1909. Price 10*s.* net. —This number contains the three following memoirs: 1. The Development and Origin of the Respiratory Organs in Araneæ, by F. W. Purcell, Ph.D., of Bergvliet, near Cape Town, with seven plates and seven text figures. The lung-books of Arachnidæ have been regarded as gills, and then as a special form of trachea, and finally as being of branchial origin. Dr. Purcell's investigations were made on 41 species chiefly collected in the neighbourhood of Berlin, and especially the embryos and young of Sitticus (Attus) floricola. He gives a table showing the homologues of the abdominal appendages and their derivatives in scorpions, tetrapneumonous araneæ, dipneumonous araneæ, pedipalpi and in the Japanese limulus. He corroborates the statement in a previous communication that none of the lung-books in scorpions are actually homologous with the two pairs in spiders, and further that the two pairs of lung-books in spiders are represented by external appendages in the adult scorpion, and the two anterior pairs of lung-books in the latter by external appendages in the adult spider. Further, he is of opinion that the lung-books of the scorpions and those of the spiders must have been derived from branchiate appendages quite independently of each other, and that the terrestrial arachnids are not monophyletic, but must have had at least a diphyletic origin from primitive aquatic arachnida with six pairs of abdominal branchiate appendages on the eighth to the thirteenth somites. Lastly he considers that the pulmonate arachnids comprise two distinct groups which have separately originated from branchiate ancestors: (1) the scorpionidæ; and (2) the araneæ and the pedipalpi. He agrees with Pocock that the scorpiones, although the most primitive of all of the terrestrial arachnida, could not have been the ancestors of any other orders of arachnida because the useful tail would not be likely to be lost. He adds that so far as our knowledge goes we may say that there is no evidence of any sort to indicate that the spinners of the araneæ were derived from sunken-in lung-books or that the spinous segments ever possessed such organs in any ancestral form of this order. Numerous and excellent drawings illustrate the various points to which reference is made. 2. Notes on the Nephridia of Dinophilus and of the Larvæ of Polygordius, Echiurus, and Phoronis, by E. S. Goodrich, F.R.S., Fellow of Merton College, Oxford, with a plate. 3. Further Notes on a Trypanosome found in the Alimentary Tract of Pontobdella Muricata, by Muriel Robertson, M.A., Carnegie Research Fellow, with a plate and five text-figures.

The Bristol Medico-Chirurgical Journal.—I the September number of this journal is published an interesting article by Mr. Ernest W. Hey Groves on Tuberculosis of the Colon, which he divides, following Hartmann, into an entero-peritoneal and a hyperplastic form. The condition is not very common and is of considerable interest as being often confounded with cancer. Mr. Groves reports two cases of the condition—one of which recovered after operation, while the other finally succumbed. Dr. J. M. Fortescue-Brickdale contributes a paper on Some of the Modern Hypnotic Drugs, which he classifies according to their clinical features. Dr. P. Watson Williams writes on Some Points in the Technique of the Radical Operation for Chronic Purulent Otitis Media, Dr. F. G. Thomson on Referred Cardiac Pain, and Dr. George H. Almond on Theoretical Considerations as to Pulmonary Percussion.

The Birmingham Medical Review.—The publication of Dr. David Fraser Harris's lectures on the essentials of physiological history is continued in the August issue of this review. The present instalment deals with the history of our knowledge of the nervous system, which was practically founded by Galen, and was carried on by the Alexandrines, and later by the school of Bologna. Of our own countrymen Willis, Hales, Bell, and Marshall Hall are honourably mentioned, but until recent years research in this field was apparently not much advanced in these islands.

Looking Back.

FROM

THE LANCET, *SATURDAY*, Oct. 15th, 1831.

COMMON PRACTICE IN IRELAND OF GIVING DIGITALIS IN EPILEPSY.

To the Editor of THE LANCET.

SIR,—Having acquired much useful information from your invaluable Journal during the last four years while pursuing my medical education in this metropolis, and knowing that your liberal pages are as open to the humble letter of the student as to the scientific communications of the more experienced members of our profession, I am induced to make a few remarks on the use of digitalis in the treatment of epilepsy, corroborative of Dr. Sharkey's statements, which appeared in THE LANCET of the 7th of August last.

It is a fact well known to most medical men practising in Ireland, that the peasantry are well acquainted with the efficacy of digitalis, or *luss more*, as they call it, in the cure of epileptic children. When the poor child becomes subject to this distressing affection, it is considered to be *fairy-stricken*, i.e., that the child has been taken away, and an old fairy sent in its place. The unfortunate being is then neglected, the extremities waste away, the abdomen is generally tumid, and the features actually assume the appearance of old age. A consultation of old women is held, with a *ban lieughth*, or woman skilled in herbs, as president. The fairy is counselled to leave the house quietly, and send back the people's child. If he continue obstinate, they first threaten him with the milder punishment of placing his breech (the "*pelvic extremity*" of Dr. ——) on a red-hot shovel, or roasting him at the fire. These threats being disregarded, and the fairy's presence being still ascertained by the recurrence of the fits, he is at last doomed to take the digitalis, a dose considered most obnoxious to the fairy tribe. A handful of the fresh leaves is boiled in milk, and the decoction is strained, and when cold, poured down the poor fairy's throat, *vi et armis*. The consequence is, in nine cases out of ten, that a cure is effected, the child soon recovers its natural strength and appearance, and the parents believe that the *luss more* has banished the fairy, and that their own child is restored to them.

Should you, Mr. Editor, honour me by giving these remarks a place in your widely-circulated Journal, you will confer a favour on one who, in common with his fellow labourers in the pursuit of science, has always found you their advocate and friend.

I have the honour to remain, Sir,
Your obedient servant,
A MEDICAL STUDENT.*

* Our correspondent has enclosed us his name and address. —ED. L.

SCHOOL HYGIENE IN BRIGHTON.—The Brighton education authority has recently been showing increased interest in the hygiene of the children under its control, and has made the study of hygiene a separate subject in the school curriculum. The committee has informed a member that it will take into consideration the question of open-air schools, and Dr. J. Lambert, the school medical officer, has received an instruction to visit as an experiment the homes of any children reported to be suffering from tuberculosis and to report to the committee at the expiration of three months. The same gentleman and Mr. H. Gervis, a medical colleague on the education committee, have been appointed delegates to the International Congress on School Hygiene which is to be held in Paris next year.

New Inventions.

SOUNDS FOR THE DIAGNOSIS OF OBSTRUCTIONS AT AND ABOUT THE BLADDER-NECK.

THE anatomy of these obstructive states is important to determine. Some, such as fibrous stenosis (so common after chronic posterior urethritis) and valvular encroachment, are scarcely recognised in this country. Again, even expert cystoscopists will admit that the cystoscope leaves much to be desired in regard to not only these but to prostatic enlargement.

FIG. 1.

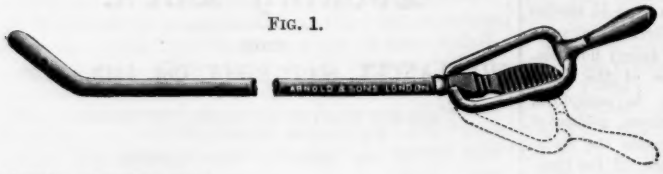


FIG. 2.

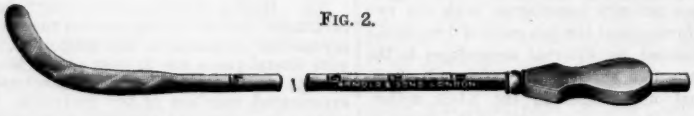
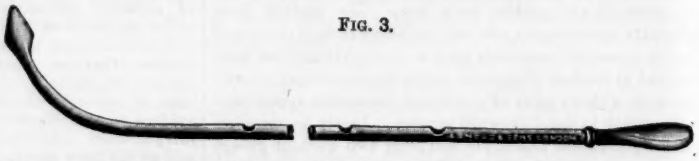


FIG. 3.



The sounds illustrated have been of much use to me for years past. I offer them as being simple, useful, inexpensive, and requiring no technical skill. The first is a modification of the ordinary sound. An old and well-known aid to determine enlarged "middle" lobe was the withdrawal of a sound in the axis of the urethra, when its deviation afforded some evidence. The test is unfair and rough, whereas the use of the sound shown will prove of real use. It should traverse the healthy urethra in all directions without deviation. I withdraw it by the small handle shown in the frame. The second instrument is a long, hollow, graduated sound, flat and broad where it lies in the prostatic urethra. In healthy parts urine should flow at eight and a quarter inches, and the sound should be capable of easy rotation. In the presence of enlarged lateral lobes it is difficult to rotate and its handle is deflected. It constitutes also a useful catheter. The third sound is one of a set (three are sufficient) specially intended for the diagnosis of stenosis, whether at the bladder-neck or before it. It is, besides, useful for ordinary prostatic enlargement examination. All bulbs traversing the deep urethra should be of this shape so as to avoid hitching on the layers of the triangular ligament on withdrawal. The instruments are made by Messrs. Arnold and Sons, West Smithfield, London, E.C.

JAMES MACMUNN, M.R.C.P. Irel., M.R.C.S.
Finsbury-pavement, E.C.

A DOUBLE-ACTION ALAR TOURNIQUET.

THIS tourniquet, as its name implies, is a double-action one and appears to present several distinct advantages over similar instruments in previous use. 1. The motion of screwing down the pad on the wounded vessel at the same time raises two metal wings at either side of the instrument. This action results in diminished pressure upon the limb and the return venous circulation is encouraged in place of being obstructed, as it is by instruments of the usual type. 2. The double movement which every turn of the screw causes considerably increases the mechanical advantage of the latter. The vessel is thus rapidly compressed by a few turns of the screw. 3. The bearing points of the instrument are so far apart that the skin cannot be nipped up between them, however rapidly it is applied. In use the pad should be applied directly over and parallel to the course of the vessel and the tape should be well tightened around the limb before the instrument is screwed down.

The instrument is made by John Weiss and Son, Limited, 287, Oxford-street, London, W.

P. N. O'GORMAN LALOR, M.B., B.Ch. R.U.I.,
Major, Indian Medical Service.

THE LANCET.

LONDON: SATURDAY, OCTOBER 16, 1909.

The Limitations of Operations.

THE progress of surgery during the last 30 years has been vast, and the results have been marvellous, so that it is hardly surprising that the idea has arisen in some minds that surgery has no boundaries, and that it will yearly spread more widely mainly at the expense of medicine until it forms almost the whole of the healing art. Dr. OSLER has just called our attention to the fact that the developments of medicine proper have been equally great, which is in other words a reminder to us that surgery has its limitations. Wonderful though its progress has been, and great its achievement, yet it must be acknowledged that in many ways it has limits beyond which it cannot pass. It can no more than medicine set aside the influence, for example, of old age when the reparative powers are to a great extent impaired. It is true that even in advanced age a broken bone will heal in most cases as quickly and as thoroughly as in a young child, but many tissues show a slackness in repair that betrays the harmful effect of old age. The wrinkled soft skin of the aged is typical of many of the tissues, and where elasticity should be specially marked there we find it most noticeably absent; for instance, ligaments lose their lissomness. But the chief change is seen in the arteries, where calcareous salts have been deposited both in the inner and the middle coats. The one-time highly elastic vessel has become a rigid tube. This is a potent factor in limiting the operations which can be performed on the old. In THE LANCET of Sept. 25th we recorded an operation done for the first time in a human being, consideration of which has led to these comments, for it seems to us that the experiment was one the result of which cannot be taken as a general lesson in surgery owing to the age and condition of the subject.

In consequence of a commencing gangrene of the foot in a feeble old man, 69 years of age, Mr. D. J. ARMOUR and Mr. E. A. SMITH performed arterio-venous anastomosis of the femoral vessels in order to carry blood to the limb through the vein. The patient was no loser by the brave attempt at conservative surgery. The arterio-venous anastomosis was successful, a result which does great credit to the ingenuity of the operators, but the attempt to save the limb failed, and those who read the account cannot doubt that the main cause of this failure was the rigidity of the arteries owing to calcareous degeneration. This is so common an accompaniment of old age that it must diminish to a very great extent the possibilities of operating. Even in many of those who can hardly be called aged rigidity of the arteries exists to a certain degree, and though its importance varies much with the operation to be performed it must to a greater or lesser extent weigh against the desirability of operating at all. The inability of accommodating itself to the varying needs of the tissues which it supplies is the cardinal fault of a rigid artery, and an operation gives rise to great variations in the amount of blood-supply. General feebleness of a patient, too, is another important factor in limiting the surgeon's power of operating, but this, unfortunately, cannot always be taken into full account by the surgeon who most usually has to recognise that death will close the scene unless he interferes. Everyone knows that the risks of an operation are vastly increased if the patient is not in a condition to withstand the shock of the operation itself or the depression which so commonly follows in its train, due partly to loss of blood and partly to the influence on the nervous system. In some conditions of ill-health the body, as a whole, and the individual organs and tissues, show no resilience after the shock of the operation; they fail to respond to the demands made on them, and attempts at repair are almost wanting. In such conditions as these, rare fortunately in a marked degree, but by no means uncommonly seen slightly developed, the efforts of the surgeon are heavily handicapped, as they are when he has to operate in the presence of serious disease of important organs. Of one of the most serious hindrances to operation, hæmophilia, we may also say a few words. However skilfully the surgeon has performed the operation the tendency to bleed will assuredly prevent success, and therefore it has been the rule never to operate on a known hæmophiliac unless the operation is absolutely essential to life. But recently it has been reported that the injection of a foreign serum such as that of the horse will prevent the persistent bleeding in these cases. If an extended trial of this method should confirm the mode of treatment a great step will have been taken in making operations possible in bleeders, whose condition at the present time is very sad. For sometimes such a patient will know that his tendency adds an enormous risk to a procedure which he must undergo, and his condition of mind, which serves as a factor in the decision as to the desirability of operating, becomes unfortunate. For the anxious, nervous patient will not stand a surgical treatment which in a stolid unimaginative man may be followed by complete success. Those who have had experience of lunatic asylums will probably agree that most of the inmates recover readily, even after severe operations, though some of the more acute cases bear operations badly.

The impairment of function by the removal of an excessive quantity of an organ will always tend to limit the activity of a surgeon in certain cases, but surgeons are unable at present to say what exactly are the limits of the possible in different directions. With one functioning kidney a healthy life can be passed, but whether life can be maintained with much less than one kidney has not yet been determined. We have somewhat more exact knowledge as to the extent of bowel which may be removed with impunity. The large intestine can be ablated completely and the patient seems to be none the worse; indeed, in some conditions the patient is much the better for the loss. Of the small intestine many cases are recorded where two or three feet have been excised without any noticeable impairment of function, but when the

amount of bowel removed exceeds this the result is not the same. Perhaps five or six feet may be excised without any marked effect, but even in these cases wasting to a greater or less extent may occur, while if more than this quantity be removed it is doubtful if life can be maintained for long. The power of absorption is so greatly diminished that sufficient material is not taken up from the shortened bowel. Recent progress in anæsthesia has rendered it possible for the surgeon to undertake operations which he would have looked at askance had only the older methods of preventing pain been available. Local anæsthesia has a great future before it, and the appreciation of the safety of very dilute solutions has justified surgeons in undertaking even extensive operations with its assistance. In this connexion may by mentioned Bier's method of producing anæsthesia in the extremities, and a paper by Mr. C. M. PAGE and Mr. S. G. MACDONALD describing this ingenious procedure will be found in another part of this issue (p. 1135). The production of extensive anæsthesia by means of the intraspinal injection of certain substances, such as stovaine and novocain, has opened a wide field of activity to the surgeon, and it is not improbable that improvements of technique will enhance its value greatly. Even at present the surgeon can operate in many cases in which the general condition of the patient would have otherwise gone far to negative any operative procedure. The developments in the facilities for operation are certainly large and getting larger, so that the surgeon of to-day must be on his guard against undertaking operations the just value of which, in gain to the patient in comfort and function, has not been estimated and balanced against the risk and the annoyance of the interference. The true extension of surgery is one thing, but it must not be forgotten that there are the things which ERICHSEN called "operative audacities," though the term would have been applied by him to procedures which are now so part of routine that the surgeon who did not carry them out, the right indications being present, would be a defaulter from ideal practice.

The Opening Addresses.

OLD customs die hard, and although half of the London schools of medicine dispensed with the time-honoured formal orations to usher in their present session, yet many schools continue to hold by the ancient observance. The "opening lecturer" can perform one of two functions. He can seize the rare opportunity of presenting to an intelligent section of the lay public the views of the medical profession, or of himself, upon some of the many urgent questions of the day which medicine can help the State to answer; in which case he will limit his remarks to the students whom he is nominally addressing to congratulations on the good sense they have shown in their choice of a profession and on their supreme discrimination in their selection of a school. On the other hand, he may make of the students his primary audience and offer them words of advice and encouragement concerning the study and practice of their future life-work; a discourse of this description may exhort the audience to industry in preparation or it may point to the results of achievement. The opening addresses which our readers have had the recent opportunity of following have all been built up on one or other of these lines. Several of them contain much useful food for thought for the public, who should be interested in the maintenance of a high standard of medical education for those who are to have the future charge of its bodily welfare. Others have been primarily addressed to the student whom they have instructed in the methods of his training, often with special reference to its defects, whom they have advised as to the manner of work and attitude of mind which will enable him to carry out his education to his ultimate advantage, or whom they have encouraged by pointing either to the mountains of discovery which have been traversed by the medical heroes of the past or to the many misty peaks that still remain for conquest.

Turning to the addresses concerned more especially with medical education, our readers will have found Professor GEORGE MURRAY'S address to the students of Manchester unusually stimulating and instructive. Amongst many interesting points there especially come to mind Professor MURRAY'S advocacy of conferences of medical teachers to ensure a better coördination between the many schools, and his remarks on the migration of students between different German universities, a system which has obvious advantages in imparting breadth of view, but which is counterbalanced, it seems to us, by considerations of convenience that render the adoption of a similar plan a difficult matter in our own country, unless it be by interchange of educational facilities between groups of the metropolitan schools, as was formerly the case. A broad outlook on medicine can be more readily given by post-graduate instruction at many centres, for which Professor MURRAY proved a strong advocate. He would have more practitioners follow the example of CULLEN and WILLIAM HUNTER, who when in partnership made an arrangement that each would alternately spend the winter in study whilst the other carried on the practice. Such a plan could, of course, only be adopted in the rarest instances nowadays, but there seems no reason why partners or even independent practitioners should not arrange with their colleagues to take their practice for a few weeks every third year whilst they took out a post-graduate course and renewed acquaintance with the atmosphere of medical research. Professor MURRAY'S remarks on the teaching of "clinical methods" and of clinical pathology were illustrated by certain American instances which our own teachers of these important subjects may do well to note, but at the same time he entered a plea for the formal lecture which has been abolished in the transatlantic schools and has been threatened with extinction in our own country, at least south of the Tweed. Professor MURRAY claimed that carefully planned and properly illustrated lecture courses may help the student with an imaginative faculty to acquire a power of mental visualisation over the processes of disease. A valuable suggestion was that in different schools certain groups of subjects should be studied systematically in the ward and the laboratory by men desiring to prepare their thesis for the doctorate. It is highly important that in the present inadequate state of endowment of medical research all

available facilities should be used to their utmost capacity and to a coördinated end, and we commend the suggestion to the authorities of the medical schools as worth a trial. No more striking instance could have been brought forward as showing the desirability of such a step than the unsatisfactory state of our knowledge of pneumonia, a disease which kills 40,000 people every year in England and Wales alone, and which some believe that HIPPOCRATES could treat as well as we can, even though he could not localise its seat. Of the few words on conduct which were addressed to the Manchester students we may repeat those which Professor MURRAY quoted from Professor MARX: "The best regulation for the medical profession consists in dignified humanity; this will prescribe in its simplest manner its relations to the State, to science, to the public." Passing from Manchester to Liverpool we find Mr. C. A. BALLANCE addressing the medical faculty of the University and recommending to their attention the cultivation not only of humanity but of "the humanities," the study of books no less than of men. Medicine is not a thing apart from life; the two must ever be in the closest touch, and the physician is the man of all others who should hold nothing of human interest foreign to his own. Mr. BALLANCE did well to press home the need of general culture and knowledge of men to his student audience. His remarks on genius, on work, on play, and on attention will be found on another page of this issue of THE LANCET garnished with many gleanings from the storehouse of English letters, of which none is more inspiring than the stately address to PERSEUS which CHARLES KINGSLEY put in the mouth of PALLAS ATHENÉ.

At St. Mary's Hospital Dr. H. A. MIERS also gave his hearers some suggestions upon the methods of their study in an address which contained nothing of the conventional. He spoke of "Theories," and advised every student to formulate for himself a theory to explain every observed fact and not to abandon it until he was forced to revise it by the test of further knowledge. The advice is excellent for men of scientific honesty. If it is a little dangerous because some are too ready to find facts to fit their theories, yet we are constrained to bless it when we consider the overloading of the present course of medical study, and those facilities for the mental "spoon-feeding" of the student, to which others of the lecturers referred. The temptation must be strong for the student to acquire many facts without attempting to shape them into any useful edifice of thought, being content to bury the noble faculty of reason beneath the incubus of an artificially swollen memory. We cannot wonder that the Principal of the University of London deplored this tendency, for, as he told his student audience, he considers that men of their age should be in the most original, inventive, and creative stage of their existence. His exhortation to observation and research was thoughtfully expressed, and in speaking later of the inter-relationship of the medical sciences he could have held up no better example than the career of HELMHOLTZ. In this connexion we may direct attention to another opening address published in our present number, although delivered not at a medical school, but before the Medical Society of London, wherein Dr. SAMUEL WEST has some very pertinent remarks to make on the mutual dependence of the clinician, the physiologist, and the pathologist. Of the other addresses to students dealing with the means of preparation for the practice of medicine, Sir ISAMBARD OWEN at Bristol unfolded to his audience what may be called the university idea, concerning which no man has more authority to speak. One of his chief points was that the measure of success of a university is to be found not so much in the number of its graduates as in the amount of post-graduate work done within its walls. Sir CLIFFORD ALLBUTT in his address at Charing Cross spoke in special praise of anatomy tempered by athletics, and told the wholesome truth that drudgery is a necessary condition of the proper acquirement of medical knowledge as of all other worth the having. At Middlesex Hospital Dr. J. S. GOODALL stood rather as the champion of physiology and made some courageous remarks about its teaching, with which we are in complete accord, but which can only be made effective by the goodwill of "intermediate" examiners. He passed in review the many stages of the medical student's education, and said this last word to the qualified man, "Don't make friends of your patients or patients of your friends," advice which few practitioners, we think, will be prepared to follow, though some might show good reason for doing so.

The remaining addresses were concerned with achievement. Dr. H. D. ROLLESTON at St. George's frankly took for his text "Let us now praise famous men," and a splendid roll he was able to call from the shades of HUNTER'S hospital. BRODIE, BAILLIE, THOMAS YOUNG, EDWARD JENNER were only a few of them, and to a long list of those men of his school who rest from their labours he was able to add many names eminent in the living world of English medicine. At the Medical School of University College Hospital Sir JOHN TWEEDY surveyed the earlier achievements of medicine from the days of the Greeks and Alexandrians, through its dark ages down to the coming of the scientific conception of disease, which he showed was based on the experimental method and on that alone, and it is to be hoped that those of the general public who heard his address or read it in the newspapers will not forget his forcible lesson upon the need of continual research for the progress of knowledge and the advantage of humanity. At the London School of Medicine for Women Mrs. FAWCETT commemorated the work of the resolute women who opened the medical profession to their sisters in this country, and showed forth the worth of the pioneer spirit, in whatever field it may be displayed. Yet another address, which also dealt with achievement, was delivered at Leeds, and we are tempted to award it the laurels of the October oratory. Although it came not from a medical man but from a judge of the Appeal Court, it showed an intimate understanding of certain great principles of health and disease which would have been amazing in a man whose researches have lain rather in civil than in natural law were it not for the knowledge of the methods and recent developments of curative science which Lord Justice FLETCHER MOULTON showed in his memorable vindication of their utility before the recent Royal Commission on Vivisection. No purpose will be gained by

summarising his address which we printed in full last week. Those who have not read it should know that they will find in it a statement of all the chief facts that have been certainly ascertained in the fields of bacteriological research and in the study of immunity, expressed in language of measured eloquence through which there breathes the true romance of scientific progress of which its speaker has clearly felt the thrill. We will recall one instance only of Lord Justice MOULTON'S powers of exposition, the passage in which he likens the man attacked with a sharp microbic invasion to a ship severely buffeted by the sea. The further she heels over, the stronger becomes the force of gravity known as the "righting couple," until she swings back once more to equilibrium. So in the human body attacked by a bacterial infection, the multiplication of the invading organisms calls forth Nature's own whip to scourge them, and the antibacterial forces of the body are generated in increasing quantity by the increasing violence of the bacterial attack. This is only the outline of the simile which was built up in a masterly manner in Lord Justice MOULTON'S address before he passed on to describe the methods of therapeutic inoculation by which our science and art can reinforce in many instances the natural defences of the body, and how this method of treatment has perhaps given us a weapon against the majority of diseases when its possibilities have been fully developed. In this account of the achievements of modern medicine given by a scientific judge we seem to read the fulfilment of the prophecy made 300 years ago by the greatest of English lawyers, the man who first opened the eyes of our own profession to the necessity of experiment for the advancement of their learning: "There is no doubt that if the physicians will learn and use the true approaches and avenues of Nature, they may assume as much as the poet saith:—

> 'Et quoniam variant morbi, variabimus artes:
> Mille mali species, mille salutis erunt.'"

The Employment of Patients with Arrested Tuberculosis.

THE crusade against tuberculosis is being carried on by both the profession and the public with an energy that is paralleled in the history of humanitarian movements only by the crusade against alcoholism. Every phase of the problem seems to have been discussed exhaustively over and over again. But there is one point which has not received adequate attention—the employment of patients whose tuberculosis has been arrested. In most cases the former employment is unsuitable because it has been a factor in the production of the disease; to return to it means to court a relapse. To abandon a calling in which skill has been acquired and learn another is difficult and entails pecuniary loss which few patients can bear. To join the overcrowded ranks of unskilled labour, where even the healthy often fail, is not more feasible. The prescription of a healthy open-air life is too often a counsel of perfection. If the patient is to follow it the employment must be provided for him. "Back to the land" is one of the remedies of the present-day reformer for the evil of unemployment. But farm colonies of the unemployed are economically a failure. Would colonies of patients convalescent from tuberculosis not be a still greater failure?

In the *Johns Hopkins Hospital Bulletin* for August Dr. A. M. FORSTER publishes an article on the employment of patients with arrested tuberculosis which shows that the problem is not so hopeless as might be supposed. The difficulties in America are exactly the same as in this country. There many efforts are being made to cause the poor to migrate to the country. But lack of funds, ignorance and prejudice, lack of training in farm work, and the disagreeable aspects of country life all tend to retard progress. However, the convalescent consumptive who has left a sanatorium presents some differences from the ordinary city worker. He has been compelled for a time to give up his old conditions of life and been placed under a new discipline. Agricultural work, suited to his strength, will only be a continuation of the discipline—the discipline on which he knows his life depends. If the patient has been treated by graduated labour, which Dr. M. S. PATERSON has shown at the Frimley Sanatorium of the Brompton Hospital to be so beneficial, he can well undertake such work. There is one form of agriculture which the modern growth of urban life demands more and more, and which is particularly suitable for convalescent consumptives—market gardening. There is great room for its development in this country and in America, where both countries are behind the state of perfection to which market gardening has been brought in France and Japan. In many cases an entire family can live upon an acre of land. The work is not laborious, and as it is entirely open-air is very healthy. At the Eudowood Sanatorium, Towson, Maryland, of which Dr. FORSTER is superintendent, farm work has been carried on for three years with gratifying results. The system of graduated labour of Dr. PATERSON was adopted. Some 50 acres of land in a very depleted condition were attached to the sanatorium. With the aid of the patients and two healthy negroes, who did the heavy work, operations were commenced. A barn and stable were built and a herd of cows added. In the second year the farm produced products of the value of 4000 dollars at a cost of 3400 dollars. Then an adjacent farm of 100 acres was added and a colony of ten patients under the direction of a practical farmer was established. Of these men four had been tailors, one a shoemaker, one a moulder, one a blacksmith, and one a schoolboy. They formed a strange mixture of races—two native Americans, one Russian-Jew, one Pole, one Roumanian, three Irishmen, and two Germans. In five the disease had been apparently cured; in four moderately advanced and arrested; and in one far advanced and arrested. They all improved and it was found possible to pay them 10 dollars a month wages. Produce of the value of 6000 dollars was raised at a cost of 5000 dollars. Fruit trees were planted and not only was the sanatorium supplied with all its vegetables and milk but a large surplus of vegetables was sold. As a special advantage of the farm colony is that a tuberculous family can be placed on a farm to work without breaking home ties, we may find in this direction the solution of a very difficult problem.

Annotations.

"Ne quid nimis."

THE ASSURANCE COMPANIES BILL AND INDUSTRIAL ASSURANCE.

IT is much to be regretted that the Assurance Companies Bill, which has just left the Lords and is now awaiting an opportunity for consideration in the Commons, makes no attempt to deal with the serious evils connected with the present system of industrial insurance. The Bill, indeed, provides additional facilities for converting large collecting societies into industrial assurance companies; it, moreover, in Clause 36, proposes to enact that no policy, effected before the passing of the Act with any collecting society or industrial assurance company, shall be held to be void because the person effecting the policy had not at the time the policy was effected an insurable interest in the life of the person insured, if the person who took out the policy had at the time a *bonâ-fide* expectation that he would incur expenses in connexion with the death or funeral of the assured, and if the sum assured is not unreasonable for the purpose of covering such expenses. This provision was probably inserted in the Bill in the interest of present policy-holders, but its result would undoubtedly be to protect a large proportion of policies having their origin in the spirit of gambling, which is so serious a drawback to the present system of industrial insurance. It is much to be hoped that when this Bill is considered in the House of Commons some attempt will be made to deal with the undoubtedly difficult, but equally important, subject of insurable interest, especially with reference to the insurance of infants and young children. It was distinctly satisfactory to note that at the recent Trades Union Congress the subject of industrial insurance was discussed in a manner which proved that the members of trades unions are fully alive to the evils of the present system. The President of this Congress (Mr. D. J. Shackleton, M.P.) moved the following resolution:—

> Having regard to the serious nature of the illegal practices connected with industrial insurance, which have led to widespread gambling in human lives, this Congress calls upon His Majesty's Government to institute an inquiry by means of a Royal Commission or a Committee with a view to legislation to prohibit such illegal practices.

Mr. Shackleton assured the Congress that its Parliamentary Committee would strenuously oppose the Assurance Companies Bill, then under consideration in the House of Lords, until some such inquiry had been held, as the facts of the case were too serious to be longer ignored. He asserted that it could be proved from the statements of insurance managers that fully 40 per cent. of the existing industrial policies were illegal. He claimed some consideration for those who were tempted by the insurance agents to take out policies, and who lost sight of the possibility of being unable to maintain the weekly payments; and also some protection for wives who were often persuaded to take out policies without their husband's knowledge. This resolution was naturally opposed by the representatives of the National Union of Assurance Agents, but on the ground that the Parliamentary Committee of the Congress was attacking a system and not individual agents the motion was approved and adopted. There can be no doubt that the proposed inquiry, in the interest of the industrial classes, should embrace consideration of the wasteful extravagance of the present system, under which the annual cost of commission to agents and the expenses of management are nearly equal to half the amount of the annual premiums, in spite of which most of the companies pay large dividends. It should, moreover, be enacted that all industrial assurance offices and collecting societies shall in future report annually the number of lapsed policies, which involve heavy loss to the industrial classes and large profit to the companies and societies undertaking this class of assurance. Such an inquiry as was demanded by the recent Trades Union Congress is on many grounds urgently desirable, and there is now good ground for hoping that the Government may accede to this request of the Labour Members, who undoubtedly represent the opinions and wishes of the industrial classes on this subject and whose views are in accord with medical opinion.

A COLD SUMMER AND THE LOW DEATH-RATE.

THE mean temperature of the air at the Royal Observatory, Greenwich, was below the average for the corresponding period of 65 years on no fewer than 63 of the 91 days during the three months ending with September last. The mean temperature for this summer quarter did not exceed 58·7° F., and was 1·7° below the average temperature in 65 years. The mean temperature of the past summer was lower than that of the corresponding period in any year since the memorably cold summer of 1860. During last quarter 7·4 inches of rain were measured at Greenwich on 47 of the 91 days in the quarter, against an average of 5·8 inches on 33 days in the ten preceding summer quarters of 1899–1908. During the past summer the temperature was therefore exceptionally low and the rainfall was considerably above the average. It is satisfactory, but not surprising, to find that in accordance with previous experience the unseasonably low temperature and excessive rainfall during last quarter were conducive to a death-rate distinctly below the average. The mean annual rate of mortality during the 13 weeks of last quarter in the 76 largest English towns, with an estimated population of 16,445,281, did not exceed 11·9 per 1000, which is the lowest recorded rate in these towns in any previous summer quarter. This rate was, moreover, so much as 3·0 per 1000 below the mean rate in these towns in the summer quarters of the five previous years 1904–08, in which quarters the rate ranged from 17·5 in 1904 to 12·2 in 1907. The temperature and rainfall during the summer quarter of the year invariably exercise a controlling influence on the death-rate, more especially of infants, through the fatality of what is known as summer diarrhœa. The deaths of infants under one year of age in the 76 English towns during last quarter were equal to 120 per 1000 registered births, against 109 in the corresponding period in 1907, and 145 per 1000 in 1908. It is not easy to account for the excess of infant mortality in these towns during last quarter, compared with that recorded in the corresponding period in 1907, when the temperature was higher and the rainfall was exceptionally small. It is a fact, however, that the fatality of infantile diarrhœa in the 76 towns was greater during last quarter than in the same period of 1907, although it was considerably below the average fatality in recent summer quarters. The mean annual death-rate from the principal epidemic diseases in the 76 towns during last quarter was equal to 1·60 per 1000, against 1·47 and 2·35 in the corresponding periods of 1907 and 1908. The death-rate from these diseases in the summer quarter of the year, as well as the rate of infant mortality, are mainly governed by the fatality of diarrhœa, more especially in urban populations. Thus, of the 6557 deaths referred to the principal epidemic diseases in the 76 towns during last quarter, 3976 were attributed to diarrhœa, against 2335 and 6929 respectively in the corresponding quarters of 1907 and 1908. The fatality of infantile diarrhœa is to a great extent the result of ignorance and neglect in the treatment of infants, and in view of the

recently increasing efforts of local authorities to combat this ignorance and neglect, it is disappointing to find that, under meteorological conditions exceptionally favourable, the death-rate from this cause last quarter should have considerably exceeded the rate recorded in the corresponding period of 1907, although the death-rate from all causes was lower. The forthcoming Registrar-General's return relating to the past quarter will presumably show the usual wide variations among the several towns in the fatality of diarrhœa and in the rate of infant mortality. The causes of these variations have never yet been fully and satisfactorily explained, although they obviously point to corresponding variations in the care and treatment of the infants.

"THE DAY OF SMALL THINGS."

Dr. May Thorne delivered the inaugural address at the fifth annual public meeting of the Association of Women Pharmacists at the premises of the Pharmaceutical Society on Oct. 8th, taking for her text "The Power of Little Things." She first illustrated it from the realm of Medicine, showing what havoc has been, and is being, wrought in the human race by the tubercle bacillus, one of the least of all little things, and how a constant attention to methods of healthy living, which some people are tempted to consider of small importance, is our chief safeguard against the unseen but deadly attack. Her next example was the plague, which was at one time thought to be due to the presence of infected rats, whereas now the rats are believed to be free from the disease themselves but to be the carriers of fleas, which, although no human eye can see them without powerful aid, are able to harbour and spread broadcast the seeds of a terrible infection. Other well-recognised examples were mentioned to show how small insects such as flies and mosquitoes play an important part in the dissemination of disease, and that where the beasts of prey, for all their ill-repute, kill their units, fleas and flies kill their thousands, whilst micro-organisms destroy millions of human lives. Other examples of the power of little things were drawn from chemistry, which teaches that by the addition of a molecule the whole character of a substance may be changed, and then Dr. Thorne brought her subject home to her audience by reminding them of what grave issues might arise from the smallest seeming slip in dispensing or writing a prescription. To those who were starting their career in pharmacy Dr. Thorne urged that it is the little things which are often the powerful factors for future good, and lastly, she recalled the word of the Lord which came unto Zechariah the prophet, "For who hath despised the day of small things?"

AN EARLY DEVELOPMENT OF THE GERM THEORY OF DISEASE.

WE have received an interesting communication from Dr. P. Fusco of Rome, who desires to call the attention of the present generation of English medical men to the views on the germinal origin of infective diseases which were held by the late distinguished physiologist Dr. Lionel Beale, who was without doubt one of the most brilliant microscopists that this country has known. In reading Beale's work on "Disease Germs, their Nature and Origin"[1] Dr. Fusco has been much struck by its author's apparent prevision of the most modern conceptions of bacterial disease, a science which at the time of his writing the book was, of course, in its infancy. It is true that nearly ten years before Davaine had suggested the filiform bodies occurring in the blood of animals suffering from anthrax to be the cause of that disease, but it was not until five years later that Pasteur started his investigations on the subject, under the impetus of Koch's experiments and of his own discoveries in connexion with silkworm disease. It is, indeed, somewhat surprising that the following passage which Dr. Fusco quotes from Beale's book has escaped the recognition of modern bacteriologists: "Some forms of disease germs not only 'protect' the organism from a second invasion of the same kind of germ, but the change induced is a sufficient 'protection' against allied forms. And there is indeed reason to hope that means may be discovered, perhaps by passing it through the bodies of animals, or in some other way, of rendering the poison milder, without destroying its efficacy as a protecting agent—in fact, that we may produce a mild and harmless disease, in order to 'protect' the organism from the chance of suffering and being destroyed by a most virulent and very fatal form of the same malady. ..... We may feel sure, not only that this is possible, but that it will be done. In this direction our work should be unremitting" (*loc. cit.*, pp. 227–28). This is indeed a remarkable passage, seeing that Pasteur's experiments on the attenuation of the virus of anthrax and chicken cholera were not made until five years after its publication and the formal announcement of the microbic theory of disease was not made by the great Frenchman in the names of Joubet, Chamberland, and himself until the spring of 1878. In reading the work we have come across other passages no less worthy of notice. On p. 176 we find, "No investigation is likely to be more fruitful in valuable results than a very careful inquiry into the microscopical and chemical characters of the blood just before its invasion by contagious diseases germs, and the alterations effected by them during the period of incubation. There is much reason to think that certain states of the blood are favourable to the multiplication of the poison, while others, perhaps, render its destruction almost certain." This is so accurate an epitome of our present conception of immunity that its enunciation nearly forty years ago on inductive principles may almost be called a scientific inspiration. But Dr. Beale's book did not confine itself to speculations on the future. He wrote some very practical advice concerning the spread of contagion by infected water, giving directions for its sterilisation and on the desirability of keeping surgical patients and lying-in women separate from cases of infective disease. His remarks on the contagion of syphilis are also most interesting in the light of our recent knowledge. How comes it, then, that his claims to be a pioneer of bacteriology have been so long neglected? The answer lies in the very book from which we have quoted. He was unable to believe that *vegetable* bacteria, the minute fungi which he well knew to exist, were the true cause of infective disease. Those who desire to know his reasons for this opinion will find them on pp. 78 to 84 of the book in question, and we will content ourselves with repeating his conclusion that "the vegetable organisms when present (i.e., bacteria and micrococci) are but accidental concomitants and that a potent poison, not of the nature of a vegetable germ, is present in the animal fluid or solid in which the contagious properties are known to reside." What, then, were the germs which Dr. Beale believed to be the contagious particles of disease? The greater part of his book is devoted to their description. He considered them to be *animal* "germinal particles" of bioplasm, the living or self-propagating matter of living beings which had undergone a form of degradation, but in doing so had acquired toxic properties and a power of almost indefinite multiplication. He made a bold speculation that their ultimate source was in a human body, that they were in fact originally derived from diseased and degenerated

[1] London: J. & A. Churchill, second edition, 1872.

leucocytes which Dr. Beale considered to be the bioplasm of the blood; but whatever their origin might have been he was convinced of their existence and gives many figures in his book to illustrate their microscopical appearance. As to what were these bodies which he undoubtedly saw we cannot now speculate, but it seems probable that his small blood bioplasts were what we now know as blood platelets. The size of these "animal germs" he put down as 1/100000 of an inch, about $\frac{1}{4}$ μ, and, of course, much smaller than the vegetable bacteria; and he was convinced that these living germs of disease did not arise in the body *de novo*, whatever may have been their ultimate origin, but were introduced from without. Of their properties he gives the following description, which can be applied with astonishing accuracy to the vegetable bacteria in which he was unable to believe as the true *materies morbi*: "The contagious virus is living and growing matter: the particles are not directly descended from any form of germinal matter or bioplasm of the infected animal, but they have resulted from the multiplication of particles introduced from without and capable of growing and multiplying in the blood: the particles are so minute that they readily pass through the walls of the capillaries, and multiply freely in the interstices between the tissue elements or epithelial cells: ..... they live and grow at the expense of the various tissue elements." We consider that these sentences alone should rescue Dr. Beale's name from bacteriological oblivion. They were largely the outcome of pure reasoning, and it must be remembered that when this doctrine of the germinal bioplastic cause of disease, which he applied to all the infective fevers, to syphilis, tubercle, and in some sort to cancer, was put forward to refute the theory of the vegetable bacteria none of the cultural and inoculation experiments which resulted in the confirmation of the latter conception of disease had yet been performed. We should like to give further consideration to the many ideas contained in this forgotten volume, but have perhaps quoted enough to introduce it to the notice of those who are interested in the evolution of modern medicine and to recall to memory an original and brilliant thinker who was known to not a few of our readers.

SUNLIGHT IN A TEST-TUBE.

IN 1774 a theologian, described as of an eccentric, restless, fiery nature, turned the rays of the sun by means of a magnifying glass upon some red precipitate imprisoned over mercury in a tube. His curiosity was rewarded after a while by the appearance of bubbles of gas, and Joseph Priestley had discovered oxygen. The importance of the discovery to medicine amongst other sciences was, of course, very great. About 120 years later physicists calculated that the heat received by the earth under a high sun and clear sky was equivalent to about 7000 horse-power per acre, but until recently nobody has got a step farther than did Priestley towards utilising this energy for practical purposes. It has been suggested, however, that some day our centres of industrial activity may be transferred to the burning deserts of the Sahara and the value of land determined by its suitability for the reception of traps to catch sunbeams. The practical utilisation of the sun's influence is certainly of far greater concern to the human race than, for instance, aviation. The conquest of the air, like that of the sea, must be dependent upon our supply of energy. Fuel, in the shape of coal and petroleum, is the chief source of energy at the present time, but it is utilised in a clumsy and extravagant way. The tides and waterfalls will no doubt in time be made to do their share, but even the energy of these is insignificant compared with the enormous energy received from the sun. Is the notion of utilising this energy too chimerical for serious consideration? In face of the measures of success already gained in regard to securing and controlling natural forces it would surely be over-timid to answer this question in the affirmative. Further, although the investigation of the subject does not hold out the promise of the "sporting time" which experimental aviation appears to give, yet there is a band of busy workers giving keen attention to it. Any day the startling announcement may come that human ingenuity has succeeded in boiling the kettle with but a few minutes' exposure to the accumulated energy of the sun's rays. A bottle of water may set the house on fire just as a pipe may be lighted by means of a glass lens. A comparatively simple experiment, but of great significance, has recently been performed which may mark the beginning of a series of wonderful practical achievements in this direction. It has been shown that by focussing the sun's rays on some crystalline silicon contained in a vacuum in a glass vessel the crystals fused in a few seconds, showing that a temperature of 1450° C. had been obtained. In a similar experiment copper and cast-iron were fused almost instantaneously. The success of the experiments appeared to depend upon the fact that the substances were contained in vessels emptied of air, for on admitting air the temperature did not exceed 675° C. From the test-tube to the steam boiler, the dynamo, and the electric cell is but a step, and Priestley's classic experiment of 1774 may receive a fame not yet reached by any other laboratory success.

THE UTILITY OF EXAMINATION OF THE NOSE AND NASAL SECRETIONS FOR THE DETECTION OF LEPROSY.

Stricker some years ago asserted that the initial lesion of leprosy was a specific ulceration of the cartilaginous septum of the nose, and in view of the fact that the bacillus lepræ is frequently found in the nasal discharges of leprous patients other observers adopted Stricker's opinion. Among these supporters we may mention Dr. Victor Heiser, Director of Health for the Philippine Islands, who in a recently published paper stated that the earliest and most constant symptom observed in the Philippine cases was an ulcer situated on the nasal septum. Among 1200 cases of leprosy taken in sequence at the leper station on the island of Culion he found these ulcers noted in no fewer than 799; and he adds that probably, if very careful and special examination had been made in the other cases, some trace, such as scar tissue, would have been discovered and would have furnished presumptive evidence that ulcers on that site had previously existed. His experience of the examination of a large number of lepers in the Philippines and elsewhere confirms his view of the importance and constancy of this sign, which may be often found, he says, long before there are any other objective or conscious subjective symptoms of the disease. With the object of determining, if possible, whether the views of Stricker and his supporters could be confirmed, and, if so, whether they could be made the basis of some practicable procedure for the detection of incipient leprosy cases, some valuable and interesting researches have lately been made by Dr. Walter R. Brinckerhoff, director of the Leprosy Investigation Station for the Hawaiian Islands, and Dr. W. L. Moore of Honolulu. The results of this inquiry have been recently published in pamphlet form as No. 4 of "Studies upon Leprosy," under the authority of the Government of the United States. The report was also communicated to the Conference on Leprosy held at Bergen in August last. These two observers set themselves the task of finding out whether the

systematic inspection of the nasal septum and the bacteriological examination of the nasal secretions of a large number of individuals belonging to a race known to be susceptible to leprosy would reveal early cases of the disease which would pass undetected by other ordinary methods of investigation; and whether, when an early case of leprosy is under observation it could be said that the malady could have been discovered by examination of the nasal septum and the nasal secretions alone. For this purpose the investigators inspected the nasal septum and examined bacteriologically the nasal discharges of upwards of 700 persons, 400 of them native Hawaiians, and some of them the children of leprous parents, living in seven public institutions. They also examined a number of patients who were attending the Free Dispensary and the Public Hospital at Honolulu. Dr. Brinckerhoff and his colleague admit that the majority of those examined were living in public institutions under good hygienic conditions which were unlikely to foster the infection of leprosy; and, moreover, most of them were constantly under some sort of medical supervision, which would probably have detected any of the early manifestations of the disease. The two investigators as a result of their inquiry, so far as it went, formed the opinion that many nasal lesions seen in lepers are of a non-specific character and have no diagnostic value. They also came to the conclusion that no considerable number of individuals in Hawaiian institutions have, as the sole evidence of leprosy, lesions in the nose which are discharging the bacillus lepræ. They therefore feel justified in doubting the value of nasal examination for the discovery of incipient cases of the disease. At the same time they admit that the specific microbe is very frequently found in the nasal discharges of lepers, and the importance of this fact from the prophylactic point of view cannot be too strongly insisted upon; but they point out that in such cases the disease has existed for some time, and they conclude that the existence of nasal ulcers has not necessarily any significance in determining the site of the initial lesion. They do not therefore recommend "wholesale" nasal examinations as a certain means of detecting early cases of leprosy, but they express the opinion that in "clinics" frequented by races which have a high incidence of leprous infection it is advisable that thorough inspection of the nasal septum should form part of the routine examination of all persons applying for medical advice.

BOY AND GIRL LABOUR.

THE question of child labour is one of the greatest importance: first, as regards the health and physique of those who will be the fathers and mothers of the coming generation; and secondly, as regards matters of social economy, for child labour is a fruitful source of production of the loafer and the wastrel in both sexes. An interesting little pamphlet has been issued on the subject by the Women's Industrial Council, written by N. Adler and R. H. Tawney, in which the problem is discussed with a sanity and restraint which are rare among the mass of writings on social reform which are daily poured forth. The authors point out what is well known, that child labour is a prominent cause of unemployment, and, worse, of "unemployability," if we may coin a word. Besides, child labour, especially in the case of boys, tends "to set no end for attainment before the boy, and therefore supplies him with no motive to steadiness and self-improvement." The decline of the apprenticeship system is noted, but as the authors truly say "the real problem of the juvenile worker with which society is faced to-day is not the apprentice at all, but the boy and girl to whom no opportunity for industrial training is, even ostensibly, conceded." The kind of employment to which too many boy and girl workers are put is stigmatised by the term, "blind alley occupations." Such occupations are, of course, due to two main factors, the one the modern system of division of labour, and the other the stress of modern competition and the natural desire of employers to obtain their labour in the cheapest way. It is far more paying to hire relays of boys to label bottles or to pack soap all day long than to give them any training which will enable them either to move up to a higher position in the same factory, or to find other work in a different one, on attaining the age of 18 years or so. They have learned to do nothing else, and when they ask for men's wages they are dismissed and their places taken by other boys. In this way the unskilled labour market is constantly being filled up. With regard to remedies, the authors divide their suggestions into two classes, legislative reforms and administrative reforms. The former include a series of Acts of Parliament which would firstly abolish the half-time system under 14 years of age as soon as possible and ultimately under 15 years; secondly, would prolong full-time education up to the age of 15 years; and thirdly, would halve the present hours of labour among boys under the age of 18 years, so that they might use the time thus gained for continued education under a new and improved half-time system. The administrative reforms chiefly deal with the question of the regulation, and, if possible, the abolition, of street-trading for children under the age of 16 years, and the furtherance of attendance at evening classes. In the matter of girl labour, the authors advocate the establishment of more trade schools on the model of the Écoles Municipales Professionnelles such as exist in Paris and other French cities. At present there are 530 girls under trade school teaching in London as against nearly 2000 in Paris. Girls who wish to work later at a skilled trade should be enabled to spend one year at some trade school on leaving the elementary schools. Further, girls who intend to take up unskilled employment or domestic service should be obliged to attend a half-time continuation school for the teaching of such matters as needlework, cookery, and dressmaking. The above-mentioned suggestions seem to us to be well worthy of consideration by our legislators, although we do not assume that they should necessarily be carried out in the absolute form in which they are presented in the pamphlet. But that they form a solid ground-work for much-needed reforms is indisputable, and we commend the pamphlet to all interested in the question. And no section of the community is more practically interested in "unemployability" than medical men, who see its miserable physical and moral results so close at hand.

THE WASSERMANN REACTION IN CARDIAC DISEASE.

THE sero-diagnosis of syphilis devised by Wassermann is proving its value, not merely as an index of syphilitic infection in individual cases, but also as an important witness to the syphilitic nature of certain lesions and maladies whose etiology is still under discussion. The most notable example of this application of the test is seen in the experiments which in various hands have established more firmly than before the importance of syphilis in the production of tabes dorsalis and general paralysis of the insane; and the almost equally vexed question of the importance of syphilis in the production of aortic disease receives new light from the investigators who have applied the serum test to the elucidation of this problem. Chiari's researches showed that in a large proportion of syphilitic persons examined post mortem a productive meso-aortitis was to be found by microscopic investigation. The further

question, answered in part by the researches of Citron [1] and Collins and Sachs,[2] is the proportion of all cases of aortic disease attributable to syphilis. The former writer, testing cases of aortic regurgitation by the Wassermann reaction, gained positive results in over 60 per cent., in a proportion larger than that of a history of syphilis. The two American physicians using the test in its classic form with liberal controls examined 36 cases in all—cases of aortic insufficiency, aneurysm, congenital cardiac malformation, mitral stenosis, arterio-sclerosis, angina pectoris, and other cardiac disorders. In their five cases of aneurysm they found a positive reaction without exception. There were 13 cases of valvular disease implicating the aortic valves only; in 12 of these the reaction was positive, in 10 pronouncedly so. In five cases the aortic lesion was complicated by disease of the mitral valve; in this group there was one positive reaction with two weakly positive and two negative reactions. In 11 cases of uncomplicated mitral disease a positive reaction was found twice only. From these findings the authors conclude that syphilis is an important factor in the production of cardiac disease, and that it is specially concerned with the genesis of lesions of the aorta and its valves. Here, indeed, syphilis is in all probability the most important exciting cause. The value of the test in its application to individual cases is illustrated by several examples described in detail, and it is interesting to note that only 11 of the 24 patients who reacted positively to the test gave a history of venereal disease.

THE METROPOLITAN WATER-SUPPLY.

THE Water Examiner has issued his report on the condition of the metropolitan water-supply during the month of July, 1909. The mean rainfall for the month, calculated as representing all parts of the Thames basin, was 2·95 inches, being 0·66 of an inch above the average for that month during the previous 26 years. During July the average daily natural flow of the Thames at Teddington Weir was 684·6 million gallons, being 141·4 million gallons above the average for the 26 preceding years. The Thames water at Hampton, Molesey, and Sunbury was in good condition during the whole of the month. Dr. A. C. Houston, the director of water examinations of the Metropolitan Board, has made a large number of exhaustive analyses of samples of water from the various sources of supply of the metropolitan area. These comprise chemical analyses of 63 samples of raw river water and of 183 samples of filtered water, also bacteriological analyses of 63 samples of raw water and of 552 samples of filtered water. The details of the analyses and the report as to the conclusions to be drawn are contained in the report by Dr. Houston which is appended. The chemical results showed for filtered waters a very slight deterioration and for the raw waters somewhat less favourable results than for the corresponding period in 1908. The deterioration is evidenced especially by the results of the albuminoid nitrogen test and the test depending on the oxygen absorbed from permanganate. The bacteriological results show that the three raw waters contain fewer bacteria than the average for this period, but the filtered waters often contained an excessive number of bacteria. It is reassuring to learn that the tests for the presence of the bacillus coli are satisfactory for both the raw and filtered waters and compare favourably with the corresponding period for last year. The filtered waters were tested as regards the presence of the bacillus coli in 100 cubic centimetres, and the percentage of negative results for each water is tabulated. A first-class water unpolluted with any sewage or excremental matter would give 100 per cent. of negative results for the various tests made for the bacillus coli. None of the filtered waters reach this high standard. The East London (Lee), East London (Thames), and the Rye Common waters give in this order the worst results as regards the presence of the bacillus coli. Dr. Houston is continuing his investigations on the effects of storage of water antecedent to filtration, and the results for July confirm those of previous months as to the very valuable benefit derived from this simple process. The words of his June report are applicable to July—viz.: "It is an underestimate of the actual truth to assert that (at present) a large proportion of the water now being delivered on to the London filter-beds is rendered at least 100 times less impure (bacteriologically), as the result of storage, than the raw river water."

[1] Berliner Klinische Wochenschrift, 1908, No. 48.
[2] American Journal of the Medical Sciences, September, 1909.

OCULAR THERAPY IN GERMANY.

WE have received several numbers of a journal entitled *La Clinique Ophtalmologique*, the articles in which are chiefly devoted to therapeutical investigations. Some of these are worthy of special notice. The journal is published in Paris under the editorship of Dr. R. Jocqs, Dr. A. Darier, and Dr. L. Dor. A good idea of the present state of ocular therapeutics in Germany is given by Dr. Darier, who remarks that in that country it is held that the surgeon ought to have some slight knowledge of the diseases of the eye and know when to call in the services of a specialist, as in all cases of septic infections of the cornea, of penetrating wounds, as well as of those in which vision is compromised, where an operation is called for, and where after treatment the question of indemnity is likely to arise. The practitioner who is first called in ought to be able to ascertain the conditions that are present, and to give his reasons for active measures, which may be of great service in the subsequent history of the case, but he should not undertake alone the responsibility of the after-treatment. Care should be taken that patients suffering from infectious disease, such as gonorrhœal or diphtheritic ophthalmia or acute epidemic conjunctivitis, should not touch their eyes, and that all handkerchiefs, towels, and cloths used by them should be purified. General hygiene and dietetics should be attended to, patients should avoid all violent efforts that may cause congestion of the head, should abstain from excess in alcohol and coffee, and from mental strain and cold feet, while arrest of the catamenia should be avoided. Diabetes and gout should be treated *secundum artem*. The urine should be frequently and carefully examined. Moderate action of the bowels should be secured, especially if there be much indican in the urine; personal cleanliness should be enjoined, but hot baths and sudorifics, formerly much recommended, are apt to fatigue. Hot drinks and salicylates are of much service in iritis, choroiditis, and neuritis. Saline baths are often beneficial, especially in those affected with scrofula, and sea air often proves useful. In infectious diseases of the lids topical antiseptic remedies are used, such as solutions of silver nitrate and protargol, and Dr. Darier remarks that the remedy he himself was the first to introduce, argyrol, might well be mentioned. Sulphate of zinc is the sole remedy that seems to have a specific action on the diplo-bacillus. Infections of the globe of the eye are less accessible to antiseptics, the employment of the galvano-cautery being the most efficacious. The intra-ocular application of iodoform is considered very questionable. Serotherapy has been tried in different affections due to specific microbes, but the normal aqueous humour takes up very little antibody and the vitreous humour practically none at all. Ocular diphtheria is almost the only affection which has really benefited by serotherapy. Neither the antipneumococcic serum nor the antistreptococcic

has given very satisfactory results. These remedies, however, may, Dr. Darier thinks, exert a paraspecific action—that is, without being infallible *per se*, they may prove of great service when combined with topical remedies. The tuberculin of Koch is in very frequent use, primarily from a diagnostic point of view. A milligramme of the old tuberculin injected under the skin produces a general and sometimes a local reaction. If it fails to do so a fresh dose of 5 or perhaps of 10 milligrammes is injected. When once the diagnosis is established the treatment with tuberculin T.R. may be commenced with 1-500th of a milligramme, and be continued with progressive increase in the strength of the dose. Augmentation of the antibodies and of the leucocytes is thus induced. In the contest with ocular infections, in addition to preparations of salicylic acid, there are the methods of mercurial medication, effected by internal administration, friction on the skin, and hypodermic and intravenous injections. Exceptional care should be taken in the administration of mercury in tabetic patients. Preparations of iodine are frequently prescribed, especially in affections of the optic nerve and of the motor nerves, in rheumatism of the uvea and of the sclerotic, in diseases of the vessels, and in hæmorrhages. From 10 to 20 grammes are dissolved in 300 grammes of water and a dessertspoonful is taken in soup or in milk. Hypodermically iodipin is employed. Sometimes large doses, as 10 grammes per diem, will act when smaller doses fail. It will be remembered that calomel insufflation must not be practised whilst preparations of iodine are used. The beneficial effects of various remedies can be intensified by heat, by massage, and by subconjunctival injection. Solutions of from 2 to 4 per cent. of common salt are employed after cocainisation or the instillation of acoine in septic keratitis and parenchymatous keratitis when on the decline. They are not appropriate in cases of iritis. Guaiacol, salicylate of sodium, and sodium iodide may be employed. Salicylates and aspirin have replaced opiates; nevertheless morphia proves serviceable in glaucoma not only by soothing pain but from its action as a myotic. Potassium bromide, veronal in doses of 0·5 to 1 gramme, and trional in 1 gramme doses have been effective in relieving pain. Cocaine retains its position as an analgesic but may be replaced by holocaine, eucaine, and dionine, but their action is briefer. Acoine in ½ per cent. solution renders subconjunctival injections painless. The practical nature of the information in this article is well displayed by the excerpts we have made.

THE MEDICAL INSURANCE COMMITTEE.

A MEETING of the Medical Insurance Committee was held at the offices of the British Medical Association on Thursday, Oct. 7th, when the best means of bringing the advantages of the scheme before the medical profession were discussed, and a considerable advance in business was also announced. Dr. G. E. Haslip was elected chairman of the committee in place of the late Dr. H. Radcliffe Crocker, on the motion of Dr. Dawson Williams, which was seconded by Dr. Squire Sprigge. The following resolution was then unanimously adopted:—

> That the members of the Medical Insurance Committee desire to convey to Mrs. Radcliffe Crocker their sincere sympathy in her bereavement, and their sense of the loss they have sustained by the untimely death of their colleague, Dr. Radcliffe Crocker, who had acted as chairman of the Medical Insurance Committee since its formation. The members of the committee recognise that it was largely owing to his keen interest and business aptitude that it has been possible for the committee to work up so large a business.

Mr. Guy Elliston, General Secretary of the British Medical Association, who is the agent and secretary of the committee, then reported that there was a policy issued at Lloyds for insuring the motor-cars of medical men upon specially remunerative terms. A synopsis of this scheme will be found on p. 1163 of this issue of THE LANCET, and we have much pleasure in recommending it to the favourable consideration of our readers. It is a source of gratification to us that the work of the Medical Insurance Committee continues to progress steadily, and we look forward to the time when, owing to increase of business, the committee will be able not only to offer the same substantial rebates to insurers but to carry over a surplus by which some selected medical charity or charities will be benefited.

PAINLESS DENTAL DISEASE AS A CAUSE OF NEURASTHENIA AND INSANITY.

THE multiplicity of causal factors to which the development of neurasthenia and of insanity is attributed is an indication of our ignorance on the subject. That cause and effect are integrally related is axiomatic, but when the same effect apparently is produced by a variety of causes we begin to doubt the genuineness of the latter, and feel that we have not advanced far in the matter of etiology. It has long been known that irregular teeth are common in the insane and among habitual criminals, as well as in the epileptic, but hitherto it seems that there has been no attempt to establish or to disprove a causal connexion between dental affections and nervous and mental diseases. Irregularity of the teeth has been regarded as one of the stigmata of degeneration, a group of anatomical and physiological peculiarities which is constantly being added to in a curiously unscientific way, and they have usually been considered as the outward expression of some unknown constitutional *taro*. It has remained for Dr. Henry S. Upson, professor of neurology in the Western Reserve Medical School of Cleveland, to suggest that dental trouble may be the actual cause of certain cases of neurasthenia and insanity. In the *Cleveland Medical Journal* for August he adduces interesting, if not altogether convincing, facts in support of his somewhat novel views. One of the simplest dental lesions is impaction. When a tooth is formed in the maxilla with its axis wrongly directed it is often prevented by impaction against another tooth from appearing outside the bone or through the gum. The result in some instances is severe toothache or neuralgia, but in most cases no such pain is present. Systematic examination with the help of the X rays of a large number of patients in three of the State hospitals revealed a considerable number of cases of impaction among patients suffering from one or other of the psychoses. Prompt recovery from insomnia and melancholia after the relief of dental lesions in a few led Dr. Upson to prosecute his inquiry more widely, and in his paper he records numbers of cases in which definite nervous and mental symptoms vanished at varying intervals after a visit to the dentist. A series of excellent X-ray photographs illustrates the type of dental affection—impaction, the removal of which seems to have been followed by such beneficial results. We cannot doubt the reality of the improvement achieved, although it is permissible to question the accuracy of the nervous or mental diagnosis in some instances. Further, when we consider the extent of our actual knowledge, such a statement as "of all cases of neurasthenia and the psychoses, not due to obvious physical causes, such as digestive disorders and eye-strain, the great majority, possibly four-fifths in men and three-fifths in women, are due to dental diseases," is a little too sanguine, even when we admit the enthusiasm of a worker in a new field of research. The phenomenon of reflex irritation is accountable for much in nervous symptomatology, and no therapeusis is sufficient which ignores obvious sources of irritation, such as adenoids, dental caries, balanitis and preputial adhesions, aural mischief, astigmatism, and so on; but Dr. Upson maintains that impaction commonly occurs without any symptom, in particular

without pain, and yet we are asked to recognise it as a *causa vera* of dementia præcox, melancholia, manic-depressive insanity, neurasthenia, the psychoses, and what not. Of course, in many dental affections pain may be the exception, though reflex irritation may all the time be at work, but as a rule the latter shows itself in local reactions merely, such as facial neuralgia, and more generally as headache and sleeplessness. Whether to its action more profound disturbances are to be attributed remains to be seen, and Dr. Upson is himself conscious of the need for further investigation ere the evidence be deemed conclusive.

POISONING BY ATOXYL.

IN order to throw some light upon the toxic effects which sometimes occur in man as a result of the use of atoxyl Dr. J. Igersheimer and Dr. Itami have carried out a series of experiments in the Pathological Institute of the University of Heidelberg, and have recorded their results in an interesting paper published in the *Archiv für Experimentelle Pathologie und Pharmakologie*, Vol. LXI., p. 18. They find that both with acute and chronic poisoning in dogs severe hæmorrhage into the kidney occurred almost invariably. This they maintain is the result of a primary effect upon the circulatory mechanism of the kidney and not, as some observers state, due to a hæmorrhagic nephritis. The hæmorrhage occurs between the cortex and medulla and leads to a more or less extensive atrophy of the parenchyma of the organ. In the cat in subacute or chronic poisoning a train of nervous symptoms are set up consisting in slowness of movement, ataxy, clonic twitchings, and more or less severe spasms and spastic paralyses. The changes underlying these symptoms are found to have their situation in the central nervous system, consisting in severe degenerative processes in the cells of the brain and spinal cord. In both cats and dogs the ordinary symptoms associated with poisoning by inorganic arsenical compounds may be present in addition—viz., inflammation of mucous membranes, conjunctivitis, and trophic changes in the skin. Further experiments with other organic arsenic compounds seemed to indicate that the symptoms of poisoning by atoxyl are not confined to atoxyl alone, but may occur with other aromatic arsenical compounds. By subacute poisoning with atoxyl no change in the blood picture is made other than a moderate anæmia. The experiments gave no support to the view that the action of atoxyl is due to its anilin or phenyl component. The ocular changes which are produced by atoxyl are to be made the subject of a further paper by Dr. Igersheimer.

THE EARLY TREATMENT OF THE INSANE IN THE COUNTY OF LONDON.

THE proposals of the Asylums Committee of the London County Council for the establishment of receiving houses for the reception of cases of incipient insanity, already published in these columns,[1] were considered by the Council on Oct. 12th at the first meeting after the summer recess. The committee recommended, after going fully into the subject, "That application be made to Parliament in the session of 1910 for powers to enable the council to establish and maintain receiving houses for alleged lunatics in the County of London." To this an amendment had been put down by Mr. Hayes Fisher on behalf of the Finance Committee to omit the words "receiving houses" and insert "as an experiment a receiving house." Mr. Hayes Fisher being absent through illness, Sir George Goldie moved on his behalf, but omitted the phrase "as an experiment." While not professing to be an expert on the question he urged the amendment on general grounds of economy and advisability. Mr A. F. Buxton seconded, arguing that it might be easier to get the Bill through if powers were only asked for one receiving house. Mr. Evan Spicer, however, pointed out that by getting full powers the council did not pledge itself in any way as to the number of receiving houses. It seemed a great piece of extravagance on the part of the Finance Committee to suggest that heavy Parliamentary expenses should be incurred twice if the experiment was successful. Sir John M'Dougall urged that one receiving house for the whole of London would be worse than useless. The object was to close the lunacy wards of workhouses, but one receiving house could not have that effect, so the present expenditure would still go on side by side with the new. The experiment under those conditions would be doomed to failure. What district would one house serve? A receiving house in the east would not serve the west, and he thought that there should be at least four. Mr. Ernest Gray asked, if the experiment was a failure, would any council add to the number of houses? If, on the other hand, the experiment was a success the amendment simply delayed the accomplishment of a reform which everybody desired. Mr. E. White thought that the council should be satisfied with one receiving house, and there would be no difficulty in inserting a clause in the Annual General Powers Bill to extend the scheme if necessary. Mr. Sidney Webb retorted that further powers could not be obtained without a special Act of Parliament, as an amendment of the lunacy laws would be necessary. To go to Parliament twice when once would do would be absolutely unnecessary expenditure and "a mere wanton, wicked waste of money." On a show of hands there voted: for the amendment, 29; against, 34. A division resulted, however, in 45 votes being cast for the amendment and 44 against. An appeal that the debate might be adjourned for further consideration was disregarded and the question as amended was then carried.

[1] THE LANCET, July 24th, 1909, p. 249.

THE VIRTUES OF THE ULTRA-VIOLET RAYS.

THERE can be little doubt that the ultra-violet rays are the friend of man in many ways. A series of carefully conducted researches has already shown that it is the ultra-violet rays in sunlight which are responsible for the production of ozone in the air, and the presence of ozone is an unmistakeable sign that there is a complete absence of organic impurity. In great industrial centres where a pure air is needed most the murkiness of the atmosphere acts as an effectual barrier against the rays, and therefore their beneficent work is largely hindered. The plea for the ultra-violet rays is therefore merely the plea for sunshine itself. Later investigations have shown that the ultra-violet rays have an interesting action upon water, resolving part of it into hydrogen gas and peroxide of hydrogen. It has for long been maintained by some observers that the freshness of air, particularly after a welcome or long-delayed shower of rain, is due to peroxide of hydrogen, which readily oxidises organic matters or impurities with which it may come into contact. The presence of peroxide of hydrogen in the immediate proximity of waterfalls has also been suspected. Further, the ultra-violet rays are inimical to disease organisms. Whether this destructive action is due directly to the rays or to the oxidising products which they effect is a matter which has not received a definite answer. Amongst the best artificial sources of ultra-violet rays is the quartz mercury lamp. This, when immersed in clear water infected with ordinary microbes and the coli bacillus, destroys those organisms within the radius of a foot in a minute. It is also a curious fact that the ultra-violet rays check fermentations. Lastly, it is probable that ultra-violet rays are largely concerned in the great assimilative processes

of plant life. It has been found, for example, that the assimilation of carbon by the leaves of wheat takes place about five times more rapidly when the sky is clear—that is, when ultra-violet rays obtain—than when it is cloudy. Altogether, the evidence of experiment is in favour of the conclusion that the ultra-violet rays fulfil a rôle of benefit to the human race, and the further study of their nature and action will be watched with interest.

WE are informed that Miss Pollok and Mrs. Gilchrist, the sisters and legatees of the late Dr. Robert Pollok of Glasgow, have given out of the estate which they inherited from him the munificent sums of £10,000 each to the Victoria Infirmary and the University of Glasgow for the endowment of a ward to be called the "Dr. Robert Pollok" ward and of a lectureship for original research in materia medica respectively. It is understood that these gifts are made in accordance with the written suggestion of the late Dr. Pollok, who throughout his career displayed a broad and unostentatious charity. Scottish medicine owes a deep debt of gratitude to the ladies who have fulfilled the wishes of their dead brother in a manner worthy of his memory.

Dr. Anton Dohn, whose death has been announced recently, was well known amongst students of natural history as the founder, and for many years director, of the Zoological Station in Naples; he was born in 1840 in Stettin, his father being an eminent entomologist as well as a Member of Parliament. He studied zoology in Jena, and afterwards by means of a scholarship from the Berlin Academy of Sciences and with grants from various other scientific bodies he was able to found the station in Naples, which has been the means of enabling students of natural history from all countries to prosecute their studies under the most advantageous conditions.

A TELEGRAM from the Governor of Mauritius to the Secretary of State for the Colonies stated that 24 cases of plague with 13 deaths were reported during the week ending Oct. 7th.

THE DANGERS OF THE DRY SHAMPOO.

I.—THE RECENT FATALITY AT A HAIR-DRESSING ESTABLISHMENT FROM THE USE OF CARBON TETRACHLORIDE AS A SHAMPOO. THE INQUEST AND PROSECUTION FOR MANSLAUGHTER. II.—FURTHER EXPERIMENTS ON THE TOXICITY OF PURE AND COMMERCIAL TETRACHLORIDE, BY V. H. VELEY, D.SC., F.R.S.

I.—*The Inquest and Prosecution.*

THE recent death which occurred during the application of a dry shampoo with carbon tetrachloride at Messrs. Harrods' Stores on July 12th has attracted considerable public attention and has been the subject of exhaustive inquiry. Briefly the circumstances of the case are as follows.

Miss Dalrymple, a young lady who, according to the evidence of all her intimate friends and relatives, had always enjoyed excellent health, went on July 12th to Harrods' Stores for a dry shampoo. She was told by the assistant in the hair-dressing department that "it might make her feel ill," but she decided to undergo the process. The operation, according to the evidence, was conducted in the usual manner. After it had continued for about two minutes the lady turned pale and leant forwards over the basin and collapsed. Miss Dalrymple was placed by the assistant on the floor and help was called for, but she did not speak again and ceased breathing two or three minutes after. Artificial respiration and other measures were applied with no avail.

Mr. Luxmore Drew held an inquiry as to the cause of death at the Coroner's Court, Kensington, and during the course of this it was stated by the manager of the hair-dressing department of Harrods' Stores that carbon tetrachloride had been used there for six years, that all shampooing assistants were allowed to use it, and that cases of slight faintness had been seen.

Dr. W. Paul Jones stated that he was called in immediately to see the deceased lady. Death had occurred before his arrival. He found the odour of tetrachloride of carbon strong in the cubicle. He also stated that in February, 1907, he had been called to see a lady who had been faint during a shampoo and who had a rapid, irregular pulse on his arrival. The lady was healthy. Dr. Jones then suggested that fans should be used, and this suggestion was adopted. He had heard of several cases of slight faintness and had seen one case where the patient was quite insensible.

Dr. B. H. Spilsbury, pathologist at St. Mary's Hospital, made the post-mortem examination. He found signs of status lymphaticus in the deceased, and expressed the opinion that the cause of death was syncope due to status lymphaticus accelerated by carbon tetrachloride. He said that "if deceased had not inhaled tetrachloride she would not have died."

The verdict arrived at by the coroner's jury was "Accidental death accelerated by the fumes of tetrachloride of carbon," and they added a rider—"That Harrods' Stores were not justified in employing an unskilled operator to perform this dangerous operation."

On August 25th a prosecution was instituted by the Director of Public Prosecutions on the charge of manslaughter against the manager of the hairdressing department of Harrods' Stores and the assistant who gave the fatal shampoo. Mr. Leycester and Mr. Travers Humphreys appeared for the prosecution.

Mr. A. J. Pepper gave important evidence as to the dangerous nature of the process and the impossibility of safeguarding against possible dangerous effects of the vapour in spite of the precautions taken as regards ventilation during the process. Mr. Pepper described the process of the dry shampoo with tetrachloride of carbon which he, in conjunction with Mr. Chaldecott, had witnessed at Harrods' Stores. Both he and Mr. Chaldecott independently noticed unmistakeable symptoms showing that the lady on whom the operation was performed had inhaled some of the vapour. This was indicated by a distinct cyanotic tinge of the lips and face. Mr. Pepper stated that there was a powerful odour of tetrachloride of carbon, especially in the lower part of the cubicle, and that "no one could possibly have breathed the air near the floor for more than a few seconds." He pointed out that in the fatal case which had been the subject of inquiry the placing of Miss Dalrymple on the floor after fainting was the worst possible procedure, since here a larger dose of the vapour would be inhaled. He expressed the opinion that status lymphaticus could not alone account for death, and that the important factor in causing death was the inhalation of carbon tetrachloride.

Mr. J. H. Chaldecott, honorary anæsthetist at St. Mary's Hospital, gave evidence as to the use of carbon tetrachloride as an anæsthetic in former years, and pointed out that its use was abandoned for this purpose owing to the dangerous effect of the drug on the heart. He stated that it was a powerful anæsthetic, that a person having a dry shampoo with the substance was likely to inhale some of the vapour, and therefore the same precautions should be taken as when an anæsthetic was administered—viz., previous medical examination and loosening of the clothing to allow free breathing.

Dr. W. H. Willcox, senior scientific analyst to the Home Office, gave evidence as to the dangerous nature of the substance used for the fatal shampoo. He pointed out that while pure carbon tetrachloride was more poisonous than chloroform the commercial samples, such as the one actually used, contained over 2 per cent. of carbon di-sulphide, which impurity greatly added to the poisonous properties. He had conducted a large number of experiments on animals with the substance actually used in this fatal case, and all of these absolutely proved that the liquid was a very dangerous poison. He expressed the strong opinion that no precautions could make the use of it as a dry shampoo safe. He pointed out that the few cases of fainting stated to have occurred at Harrods' Stores could not be rightly taken as representing all the cases of illness from the substance, since frequently the symptoms are delayed for some hours, and some people who have had a dry shampoo would, no doubt, have suffered from vomiting and illness afterwards just as happens to people who work with the drug in laboratories. Dr. Willcox stated that he had performed experiments which proved that the substance used would rapidly evaporate, and to such an extent

that it was possible in a few deep breaths for a healthy person to take a fatal dose. He stated that he had had considerable experience of status lymphaticus, and that in this case the immediate cause of death was, in his opinion, undoubtedly due to the inhalation of carbon tetrachloride.

Lieutenant-Colonel E. Lawrie, I.M.S., stated that he had been medical attendant of the Dalrymple family and had known the deceased for a number of years. In his opinion she was quite healthy and the only cause of death was inhalation of carbon tetrachloride.

Dr. Spilsbury repeated the evidence he had given before the coroner's jury, and stated again that death must have been accelerated by the inhalation of tetrachloride of carbon.

Mr. Bodkin, for the defence, said that he had no complaint to make at the institution of the prosecution, and stated that Messrs. Harrods, on learning that carbon tetrachloride was dangerous to certain people, immediately gave orders that this preparation was never again to be used in their establishment.

Mr. Leycester, on hearing the steps taken by Messrs. Harrods, consented to the withdrawal of the charges of manslaughter. He pointed out that the prosecution had served the purpose for which it was intended in bringing to the notice of the public the dangerous nature of the dry shampoo where carbon tetrachloride was used, and also that it would be a severe warning against the use of this substance by any other persons for that purpose, since if any future deaths occurred a serious charge would of necessity be instituted.

The learned magistrate, Mr. Horace Smith, agreed with the course taken to withdraw the prosecution.

In view of the important evidence which has been published in connexion with the case, we feel sure that the Pharmaceutical Society will consider it desirable to make a recommendation to the Privy Council to place carbon tetrachloride on the Poisons Schedule. We consider that the public should in future fully realise the dangers of the dry shampoo, not only when carbon tetrachloride is used but also with many other preparations extensively employed. Carbon tetrachloride probably came into use because it was not inflammable, though, as is evidenced above, it has other very serious dangers. Many of the preparations which are used for the dry shampoo are dangerously inflammable, and numerous serious cases of burning have resulted, while a terrible tragedy of this sort has just occurred.

Our readers will remember that in THE LANCET of August 7th we published an important note by Dr. Augustus D. Waller on the relative toxicity of chloroform and carbon tetrachloride, with a note by Dr. V. H. Veley on the danger of the latter substance as a dry shampoo. We are now enabled to print an account of further investigations by Dr. Veley on its toxicity.

II.—*Further Experiments on the Toxicity of Pure and Commercial Carbon Tetrachloride*, by V. H. VELEY, D.Sc., F.R.S., *Physiological Laboratory, University of London.*

In consequence of the important case upon this matter recently before the court, I have, in the absence of Dr. Waller, carried on experiments, supplementary to those already described in THE LANCET, on the comparative effects on isolated muscle of (1) pure carbon tetrachloride as against pure chloroform, and (2) pure carbon tetrachloride as against the same substance to which carbon disulphide had been purposely added in the proportion of 2 per cent.—namely, that in the commercial article. The sample of pure carbon tetrachloride was obtained by the fractional distillation of the commercial article; its physical properties, boiling point, density, &c., were in accordance with those found by Thorpe, Young, and previously by myself.

The experiments were conducted in the usual manner—namely, to obtain the normal response from muscle in saline solution, then to substitute the chemical compound and continue until abolition of response took place, then again to put back into saline solution in order to ascertain the recovery, if any.

1. *Pure carbon tetrachloride as against pure chloroform.*—Solutions of both these substances were made up to $\frac{n}{100}$ concentration in physiological saline solution, and therefore contained 0·1538 per cent. carbon tetrachloride, and 0·1194 per cent. chloroform respectively, neglecting variations of density of water; the substances were weighed out to within 1 part in 500; the former solution was subsequently diluted as required.

First series of experiments. Substances both of $\frac{n}{100}$ concentration. Times required for abolition: chloroform 14′, carbon tetrachloride 17′; good recovery in the case of the former, no recovery in the case of the latter.

Second series of experiments. Carbon tetrachloride $\frac{n}{150}$, chloroform $\frac{n}{100}$. Times required for abolition: chloroform 13′, carbon tetrachloride 28′; recoveries as before.

Third series of experiments. Carbon tetrachloride $\frac{n}{130}$, chloroform $\frac{n}{100}$, being approximately the proportion of equal weights. Times required for abolition: chloroform 13′, carbon tetrachloride 24·5′; recoveries as before.

Hence, therefore, though the action of carbon tetrachloride is less rapid than that of chloroform, its action is more deadly, as the muscles recovered from the toxic effects of the chloroform, but were killed by the carbon tetrachloride.

2. *Pure carbon tetrachloride as against the same with 2 per cent. carbon bisulphide.*—The former solution was the same as that used in the experiments described above; the latter solution contained 0·1538 per cent. tetrachloride and 0·003 per cent. carbon disulphide. It might be an open question whether the latter substance really dissolved or only formed an emulsion with the water, but, however this may be, the liquid thus obtained had an odour quite identical with that of a similar liquid obtained from the "dry shampoo." Two series of experiments gave the following results:—

	Times required for abolition.	
	Pure carbon tetrachloride.	Do. with 2 per cent. carbon disulphide.
First series...	20′	16′
Second series	20′	14′
Mean value	20′	15′

There was no recovery in any case.

Hence, therefore, since the toxic or lethal values are inversely proportional to the times, one has the ratio 15 : 20 : : 100 = 133, or, to put the matter in other words, the 2 per cent. carbon bisulphide purposely added increases the lethal value by as much as 33 per cent. It may further be mentioned that a solution (or emulsion) containing 0·1 per cent. carbon disulphide, obtained from a sample of hair-wash, killed an isolated muscle immediately.

It is to be hoped that the public warning may suffice to stop the use of carbon tetrachloride by unskilled and untrained persons.

MOTORING NOTES.

The Red Cross Doctors' Policy.

THE Medical Insurance Committee (see p. 1160) has had under consideration for some time the question of motor-car insurance, and is now in a position to recommend insurance at Lloyd's under a policy which is better calculated to meet the practical needs of motor-car owners than any other which has been inspected. It is well known that the sale value of a car purchased new deteriorates very rapidly. A medical man may, for instance, purchase a new car for £700 and insure it for that amount, paying a premium on that sum annually; if, however, his car becomes a total loss three or four years later he would under ordinary circumstances receive not the replacement value, £700, but the sum at which the car is valued at the time it came to grief. A car bought new for £700 would probably in its third year not be valued at one-half that amount, although its usefulness to the owner would not have greatly diminished. The policy which the Medical Insurance Committee recommends meets this objection, since the insured value is agreed as the replacement value. Thus, in the event of total destruction or loss, the full amount insured is paid in cash. The premium rates are governed by the present value of the car and accessories and by its horse-power; for instance,

on a 10 horse-power car and accessories valued at £300 the annual premium is £11 10s., and for a 14 horse-power valued at £400 the premium is £14, and so on. The rates quoted are those of the "Red-Cross" doctors' policy, and the premiums cover (1) all damage to car the direct result of accidental collision, excluding wilful damage, wear and tear, and mechanical breakdown; (2) all claims for which the assured may be liable for injury to persons (excluding passengers) and animals, or damage to vehicles or property caused by the car, also law costs incurred by consent; (3) all damage by fire, lightning, explosion, or self-ignition, including tyres, lamps, and accessories on the car; (4) loss of car by theft, including accessories, fittings, or parts, if stolen with the car, and damage to car through any attempt at theft; (5) damage to car while being towed or conveyed by road, rail, or inland waterway, anywhere in the United Kingdom; (6) damage to lamps and accessories due to accidental collision, and damage to tyres from the same cause when the car also is damaged. Further, compensation of £1 a day is paid during the time the car is being repaired owing to an accident, to cover the cost of hiring a conveyance; this compensation is payable from the second day after the receipt from the repairers of the assured of an estimate for the repairs until the repairs are actually completed, but the allowance for hire of a conveyance will not be paid beyond 75 per cent. of the agreed cost of repairs. There is no restriction as to driver, all damage to the car being covered while any licensed person is driving, whether with or without the knowledge of the assured. If no claim is made in a year an amount equal to 25 per cent. of the full premium paid will be returned in cash. If the owner only drives there is a reduction of 5 per cent., and if the same owner owns two cars, only one of which is used at a time, there is a reduction of 20 per cent. on the combined premiums; if both cars are liable to be in use at one time the reduction is 10 per cent. The owner's liability with regard to his paid driver, accidents to the owner or passengers in the car, and theft of accessories can also be provided against under these policies for small additional premiums.

The Medical Insurance Committee is able to allow 10 per cent. off the total premium paid by the insurer. Special policies are also issued to owners of certain makes of cars, authorising them to have repairs up to any amount commenced immediately without consent at the authorised agents of the particular company, but for a medical man the "doctors' policy" would seem to be the best. Red Cross policies are also issued without the provision above mentioned for compensation while the car is being repaired, and can be made to cover mechanical breakdowns under certain conditions, the premiums being adjusted accordingly. A full prospectus of these may be had on application to the secretary and agent at 429, Strand, London, W.C.

The Olympia Motor Exhibition.

The only International Exhibition of Motor-cars this year will be held at Olympia, London, from Nov. 12th to 20th. This will be the eighth held by the Society of Motor Manufacturers and Traders, and as there will be no exhibition in Paris this season a large influx of visitors and buyers is expected. About 300 firms will be displaying their wares and a moderate estimate of the motor-cars on exhibition would be 600, whilst in addition there will be all kinds of engines, types of electric ignition, lamps, clothing, and tyres. Special trains at cheap fares will be run by the railway companies from the chief towns in the provinces, and doubtless many medical men, hesitating or on the verge of changing from horse-driven to petrol-propelled vehicles, will take advantage of these special railway facilities to visit the show, where the latest ideas in motor construction will be on view. As last year, the number of THE LANCET which is published on the same day as the exhibition opens will contain a description of the show, and especially of such exhibits as are likely to be of interest to the medical motorist.

THE autumn dinner of the Glasgow University Club, London, will be held at the Gaiety Restaurant, Strand, on Friday, Nov. 5th, at 7.30 P.M., when Lord Rosebery, Chancellor of the University, will preside. Members who intend to be present, or to introduce guests, are requested to send notice at once to the honorary secretaries, 4, Bryanston-street, Portman-square, W.

THE JUBILEE OF THE CRANLEIGH COTTAGE HOSPITAL.

JUST half a century ago there was opened in the Surrey village of Cranleigh (or Cranley, as it was then spelt) the first cottage hospital in England, and this, the month of its jubilee, is a fitting occasion to recall the inception of a class of institution which has become familiar in every part of the country, and which in spite of certain adverse criticisms has largely justified the intentions of its founders. To those who are accustomed to the neat brick-built bungalow buildings, which in their equipment and design are microcosms of the larger county institutions for the sick poor and with which the name of cottage hospital is in most instances associated at the present day, it may come as a surprise to learn that the word "cottage" was accurately descriptive of the prototype of them all. The medical founder of Cranleigh Cottage Hospital was the late Mr. Albert Napper. Mr. Napper, who at one time was associated with this journal, has been dead 15 years, but he is still remembered by many of his friends, for he gained the respect of his neighbourhood as a skilful surgeon, a keen sportsman, and a humane and open-hearted country gentleman. The idea of the cottage hospital was driven home to Mr. Napper by the frequent occurrence in his practice of cases of serious illness that could not be given the treatment necessary for the patients and satisfactory to himself in the poor and frequently unhealthy surroundings of an agricultural labourer's dwelling, whilst he had frequently found it difficult or impossible to induce such patients to leave those homes to enter the county hospital at Guildford some miles away. They dreaded the unknown environment of a large institution and wished to remain in the hands of the man they knew and trusted. Others who had met with accidents might have been induced to enter a large hospital but would have undergone serious risk in the journey over country roads necessary to reach it. These facts had also struck the late Archdeacon J. H. Sapte, rector of the parish, who having a convenient old cottage in the village, offered it rent free to be equipped as a hospital for the use of a limited number of poor people needing careful attention whilst undergoing medical or surgical treatment. The scheme aroused interest in the neighbourhood and a small committee was formed to put it into execution, with the result that the following rules, amongst others, were framed for the conduct of the little hospital:—

The hospital is designed for the accommodation of the poor when suffering from sickness or accident.

The establishment shall consist of a regular nurse, and another woman for the regular work of the house.

The nurse shall, at such times as her services are not required in the hospital, attend poor women in their own homes during their confinements or other illnesses, on the payment of the usual fee.

Patients shall be received on the payment of a weekly sum, the amount of which, dependent on their circumstances, is to be fixed by their employer, in conjunction with the manager of the hospital, who shall grant admission on consultation with the medical officer.

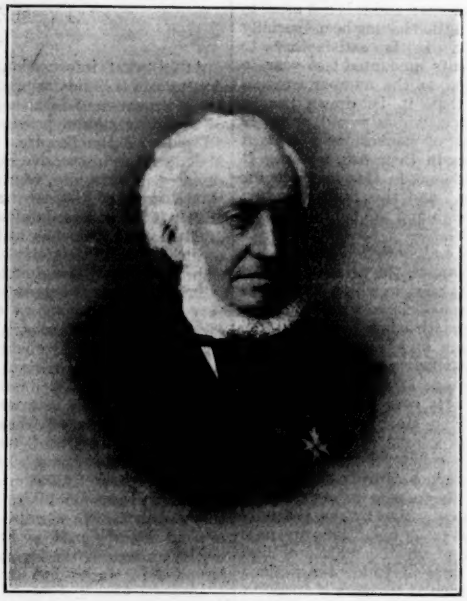
The funds for the establishment and support of the hospital shall be raised by voluntary contributions.

It was further provided that Mr. Napper should be the medical officer, but that cases admitted from the practice of neighbouring medical men should be visited by them so that they might have a voice in the treatment. A lady volunteered to give her help to the establishment in special cases. An excellent rule (which has been followed since the foundation) was that parish patients might be received into the hospital for operative or other treatment, in which case the Poor-law medical officer who attended them was entitled to recover from his guardians the special fees sanctioned by the Local Government Board. The idea of the founders was to reproduce, as far as possible, the kind of life to which their patients were accustomed in their own homes, only replacing cleanliness and decently served and cooked meals for the dirt and ill-feeding which were then, as now, only too common in many rural homes.

The building which was adapted to this purpose by the rector's generosity was an old and picturesque two-storey cottage. It is well shown in our illustration, and did duty until 1901, when the single-storey brick hospital, part of which can be seen behind the old cottage, was erected to meet the demands of modern surgery, the cottage being converted to the use of the nurse and the

kitchen department. As it was originally used, the two chief bedrooms on the upper floor were made into wards for three male and three female patients respectively, a smaller room was employed for operations, another tiny apartment for the nurse's bedroom, and the large room downstairs was the kitchen and sitting-room for convalescents, the furniture being that of a decent cottage kitchen-parlour. Very pleasant the old place is to-day, with its wealth of black oak beams and spotless white walls, although the patients have left it for the two modern wards, properly equipped for aseptic treatment, separated from their excellent bathrooms and lavatories by properly cross-ventilated passages. These wards will accommodate two more patients than was formerly possible in the old building. The bathroom is not an innovation, for considerable trouble was spent in erecting a bath with hot and cold service in the original hospital, which thus boasted a possession perhaps unique amongst the English cottages of the middle of last century.

FIG. 1.

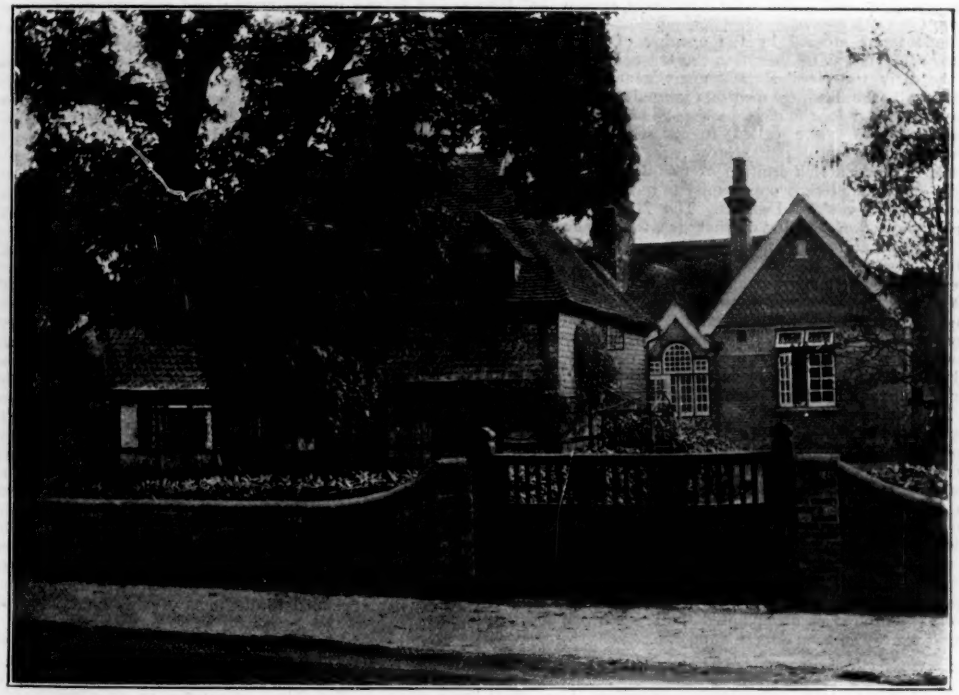


The late Mr. Albert Napper, M.R.C.S. Eng., L.S.A., medical founder of the first Cottage Hospital.

The new hospital has an operating-room which in lighting and arrangement is all that can be desired, a feature that, as many of our readers know, is now common to these institutions.

The history of the Cranleigh Hospital has been almost uneventful in its prosperity, the chief incidents present having been the retirement of its medical founder in 1881 (when he was presented with a testimonial which was largely subscribed by the medical profession and which THE LANCET did its best to promote), and the move into the new quarters eight years ago. The managers have wisely contented themselves with improvement rather than expansion—the present hospital contains only two beds more than the old building—with the consequence that it has never had to face an adverse balance-sheet. In the four years after its opening it received 100 villagers at a total cost of £612, of which £131 were contributed by the patients themselves; and we find by the last annual report that 65 cases were treated during the year, with an average stay of 2 33 days each. Several serious

FIG. 2.



Cranleigh Cottage Hospital. In the front is the old building, shaded by the tree. At the back is one of the main wards of the present hospital.

surgical emergencies and a good number of accidents were treated, but cases of chronic illness are not received unless they require relief for urgent symptoms; and it is not usual to receive domestic servants, the institution having been specially intended for poor country folk. It is satisfactory to note that the receipts from patients amounted last year to £48 10*s*., a good sum in relation to the number treated, especially when we remember that it is drawn from a poor class in return for attendance, which would probably have left any medical man out of pocket who treated the patients for the customary fees in their own homes. It is clear that no case can be made out in this instance for the existence of "hospital abuse," and this is endorsed by the practical interest which Cranleigh and the neighbourhood take in supporting its little hospital.

The management has continued on its original lines with a few modifications. Mr. Arthur Napper, the present medical officer, succeeded his father in that post, in which Dr. A. H. Walker and Dr. J. K. Willis are now associated with him. The policy of inviting neighbouring practitioners to attend their own cases in the hospital has been maintained, and in this manner an ethical difficulty, which has been unfortunately prominent in connexion with several larger hospitals, has been averted. Quite recently a new post has been made, that of consulting surgeon, to which Mr. Stansfield Collier has been appointed, and we are convinced that cottage hospital managers throughout the country would do well to create similar posts where they do not already exist. The surgical skill of the country practitioners who attend the poor in cottage hospitals is not called in question by the proceeding; it is simply a recognition that many operations are now performed which were undreamt of in the middle of last century. Cases must sometimes arise in which the patient will have an appreciably better chance of recovery if operated upon by a man who devotes his whole time to the practice of surgery, and who perhaps has performed the operation in question a very considerable number of times more than opportunity has made possible for the local surgeon. In the vicinity of most cottage hospitals there are towns in which men practising pure surgery live, and from these towns cottage hospitals could easily draw consultants and thus reinforce their useful and truly charitable system for the relief of the sick poor.

The interest aroused by the opening of the Cranleigh Cottage Hospital at its inception was not confined to Surrey. In the early "sixties" a great many general newspapers, besides all the leading medical journals, described the experiment, and for the most part spoke of it in enthusiastic terms. THE LANCET called it "a sensible and useful development of local philanthropy, for which we desire permanence and a rich fruition of useful work," and we are glad to take the present opportunity to record the fulfilment of our predecessors' good wishes. The *Times*, the *Saturday Review*, *John Bull* (the first of that ilk), the *London Review*, the *Scotsman*, and a large number of provincial journals gave full descriptions of the hospital and its methods, and from a lengthy contemporary article in *Good Words* we learn that Fowey and Bourton-on-the-Water were not long in adopting the Cranleigh lead. East Grinstead and Tewkesbury were also early in the same field and within ten years there were nearly a hundred cottage hospitals built or building in various parts of the country, most of them having adopted the Cranleigh constitution for a model. In 1881 we recorded the existence of over 300 similar hospitals in the United Kingdom as well as of many in the colonies, on the continent, and in America. Their popularity has never waned, and at the present day it is probable that most of our readers in the country are in active touch with one of them, and we believe that their work will stand the criticism of results. Of their popularity with their poor beneficiaries there can be no question, and we see no reason why, if worked on the system which we have described, they should excite the opposition of any branch of the medical profession, seeing what good fruit has already sprung from the stock first planted and tended with devotion by that worthy surgeon Albert Napper.

DONATIONS AND BEQUESTS.—Under the will of the late Rev. E. L. Adams, the Manchester Royal Infirmary will receive £4000, upon the condition that a ward in the institution be named the "Elizabeth Adams Ward."

PERIODICITY IN EPIDEMIC DISEASE IN MELBOURNE.

AUTHENTIC information respecting sanitary matters in Australasia is highly appreciated in the mother country, and the interchange of ideas made practicable by the discussion of such information proves advantageous to the dwellers in all parts of the Empire. The latest mail brings us from Melbourne an instructive essay on the periodicity of epidemic diseases in that city, reprinted in pamphlet form from the transactions of the Australasian Medical Congress. The author is Dr. James Jamieson, the medical officer of health of Melbourne, who has utilised the occasion of the meeting recently held in that city to introduce this topic for discussion by his professional colleagues.

British epidemiologists will be particularly interested in this essay, for it shows that if due allowance be made for the wide differences, geographical and other, between Australia and this country, the incidence of epidemic mortality in both regions of the globe is, in many respects, similar. Dr. Jamieson selects for particular comment enteric fever, scarlet fever, diphtheria, and influenza—the first three of these being those with which his duties as guardian of the public health bring him into most intimate contact. Except incidentally Dr. Jamieson does not attempt to compare the seasonal distribution of epidemic disease in his own city with that which obtains in this country. We surmise that this is because the information at his disposal is limited to fatal cases of disease, whilst concerning the far greater amount of sickness which, happily, is "not unto death" the Melbourne authorities possess no record. For the information of our Australian brethren we may mention that under a general Notification Act every sanitary authority in England is compulsorily furnished with the name and address of every person suffering from any of the more dangerous epidemic diseases, and consequently a vast amount of material is accumulating here which, if properly analysed and registered, should eventually furnish accurate information respecting the very points discussed in the present essay; and this information would be available for comparison with similar data for the colonies as soon as they are ready to utilise it. That the health officer of Melbourne desires similar equipment for his own city we gather from the following passage in his essay: "A special point in the history of the epidemic diseases (in Melbourne) is the liability which they show to successive periods of increase and decline, in prevalence, and in fatality. The problem in connexion with this would be simplified if there were a constant ratio between these, since, even in the absence of any exact returns as to prevalence, it would be sufficient to know the number of deaths in a given period. This is not the case, however, since almost all epidemics have a varying degree of virulence and of mortality at different periods. Scarlet fever has this peculiarity perhaps more than any other disease. In the early years of its appearance in Victoria it was looked upon as a trivial ailment, whilst the great outbreak of 1875–76 showed a severity which must be described as excessive. Again, in recent years the mortality has been actually trifling. Of these alternations we have as yet no approach to an explanation, and can only postulate some cosmic conditions as operative in their production." This being so, the omission to which we now call attention is a little puzzling. Dr. Jamieson illustrates his essay by means of a series of charts which, with the help of his assistant, Dr. Walter E. Summons, have been carefully drawn to scale and which add materially to the value of the work. Much labour has evidently been expended on these charts, which relate to the mortality from epidemic diseases for a series of years, but the chief meteorological data, such as temperature, rainfall, and atmospheric pressure, which in this country are usually appended to diagrams of this kind, have been omitted.

Dealing with the question of epidemic prevalence generally, the writer remarks that at longer or shorter intervals there occur in Australia severe outbreaks, followed by periods of diminished prevalence or complete cessation. In isolated districts this may be merely a question of fresh introduction of infection from without. But in districts where the disease is always more or less present recurring outbreaks

are probably due to the growing up of a fresh body of susceptible subjects. While in either of these ways it may be possible to account for the recurrence of outbreaks at intervals more or less regular, they supply no explanation of the fact that the same disease shows a varying degree of virulence and of fatality at different times. With reference to the incidence of scarlet fever mortality Dr. Jamieson's experience confirms that of this country, that the disease shows a marked tendency to increased prevalence in autumn, with a climax of severity in September. This is the case in Melbourne, for a similar tendency is seen there at the corresponding season—that is, in March. The character of the curve is convincing as to the general tendency to increased prevalence from October to March, with a corresponding decline to October again. It might be supposed, he suggests, that the rise to a maximum in March is related to school attendance. But in a rather slowly spreading epidemic like scarlet fever there would appear to be nothing in such an explanation adequate to account for the rapid fall in April. To assume a varying susceptibility in the child-population at different seasons, or some corresponding variation in activity of the infecting agent, is mere theorising. Moreover, it has to be noted, as against such a hypothesis, that the climax in diphtheria falls in May, though the two diseases have the same proneness to localise their early manifestations in the fauces.

By means of a chart relating to diphtheria in Melbourne it is shown that, as in Europe and in America, this disease is far more fatal there in the colder months of the year and less so in the warmer. How regular is this seasonal recurrence when account is taken of a large number of cases spread over many years is shown by the curve, which, in the uniformity of its ascent and descent, is remarkable. Discussing the probable causes of the increased prevalence of diphtheria at this season of the year Dr. Jamieson passes in review some suggestions emanating from this country and elsewhere. Among these is one that the winter prevalence of this disease depends largely on the concurrent presence of catarrhal affections of the nose and throat, but it is dismissed by the author with the remark that whereas catarrhs are never so common as they are during influenza epidemics, no concurrence is observable when the curves of these two diseases are exhibited in the same diagram.

Among the commoner diseases of the epidemic class enteric fever is the one that most perfectly illustrates what may be termed cyclical periodicity—i.e., the recurrence at regular intervals of outbursts of illness of great extent or severity. This disease, as it occurs in Australia, is dependent more than any other on external conditions; in only slight measure is it directly contagious; it has no special liability to affect children; and it has a regular seasonal periodicity. Up to 1890 the disease seemed to run riot in Melbourne, whilst from 1891 to 1907, during which period there have been improvements in sanitation and steady extension of sewerage works, typhoid prevalence has been reduced to quite a low level. In the first of these periods there are clear signs of a tendency to severe recurrence at intervals of four years, whilst in the second the mortality varies little from year to year. In the first the inhabitants of the city were left almost at the mercy of external influences, whilst in the second such conditions were either curbed or kept in abeyance. "It is fortunate," adds Dr. Jamieson, "that though we have no solution of the theoretical problem we have at least succeeded in attaining the valuable practical result of getting typhoid mortality reduced till it is in a fair way of becoming a vanishing quantity."

ASYLUM REPORTS.

Royal Albert Asylum.—The annual meeting of the Royal Albert Asylum (Training Institution for the Feeble-Minded of the Northern Counties), Lancaster, was held on Sept. 30th, at Bradford town hall, Lord Richard Cavendish, deputy chairman of the central committee, being in the chair. The report spoke of the loss by death of Sir J. T. Hibbert, the Marquis of Ripon, Earl Egerton, Sir Edward Lawrence, and other supporters, but said they had been fortunate in obtaining the services of the Earl of Lathom as chairman, and of Lord Richard Cavendish as deputy chairman and chairman of the house committee. The appointment of Mr. E. Tootal Broadhurst was referred to as being very gratifying as chairman of the Manchester and Salford committee. The subscribers were asked to give their approval to the incorporation of the asylum under the amended title of "the Royal Albert Institution, Lancaster." Incorporation would confer many advantages, and care had been taken to comply with the views of the founders, while the alteration of title would remove some of the disadvantageous associations connected with the word asylum. The forty-fifth annual report was testimony to the increased and increasing work of the institution. There are now 678 inmates, 431 males and 247 females. 292 were election cases, an increase of 22 during the last two years, and 332 were cases received at reduced rates of payment. There were 273 patients from Lancashire, 210 from Yorkshire, 63 from Cheshire, 59 from Durham, 31 from Cumberland, 20 from Northumberland, 16 from Westmorland, and six from other counties. The average number resident during the year had been 661, as against 647 in the previous year. With increasing numbers increased support is necessary, which the committee confidently look for, although from the severe depression of trade there was some decrease in the year's subscriptions. The inmates of the institution were said to look cheerful and happy, as well as being neatly dressed. During the year there had been 65 admissions, 34 discharges, and 13 deaths. The aggregate number under treatment during the year had been 725, 682 being the highest number resident on any one day. Of the 34 discharged, there had been material improvement in 13 cases, moderate improvement in ten, and nine others showed slight improvement. The deaths showed a percentage of only 1·79 of the aggregate number under care. There has been a considerable strain on the resources of the infirmary as to space, and Mr. Archibald R. Douglas therefore recommended the erection of an inexpensive building for the quarantining of infectious cases. The value of such an institution as this is far greater than is indicated by the mere numbers given. It is to be hoped that in time the whole nation will be alive to the necessity of maintaining life-long control of these unfortunate members of the community, and not be satisfied that in early adolescence the feeble-minded ones shall be unprotected and left to their own devices.

THE CHEMICAL PRESERVATION OF JUG-CREAM.

UNDER the exigencies of our present-day existence and by virtue largely of our insular position traders are compelled in the case of many of our foods and drinks to resort to some method of preservation. By the introduction of substances which are also prescribed for use as drugs fraught with physiological results they have been able to introduce and retain in grocers' and fishmongers' shops foods which without such medicines might have betrayed their presence in unpleasant fashion. On the other hand, the employment of these chemical preservatives, such, for example, as salicylic and boric acids, has in the past placed a discount upon cleanliness and freshness by enabling less care to be exercised in the choice and preparation of the original articles. It is said, for instance, that the unwholesome conditions under which certain firkin butters are prepared would long have ceased were it not for the large amount of preservatives which are added to them. But it is alleged that in the case of certain foods it would not be practicable to rely entirely upon methods of preservation such as cleanliness and the application of cold or heat, since sometimes these methods render the foods unpalatable, and therefore unsaleable. In the case of milk the Departmental Committee on Preservatives and Colouring Matters in Food recommended in 1901 that in no circumstances should any chemical preservatives be added, since it was able to show that under existing arrangements an invalid infant might easily, day by day, have unconsciously administered to it far larger doses of certain drugs than would be prescribed for an adult by the physician. But as regards cream, it was decided that provisionally boric acid or mixtures of boric acid and borax might, if declared, be added in amounts not exceeding 0·25 per cent. expressed as boric acid (H_3BO_3). At that time there were but few experimental data available as to the effect of this amount under all meteorological conditions, and some

of the small dealers in jug-cream have, it appears, experienced difficulty in carrying on their trade during the hotter months with this maximum. Accordingly Dr. J. M Hamill, one of the food inspectors of the Local Government Board, has recently investigated the subject from the point of view largely of the jug-cream traders. The result of his investigation is to show that a cream trade can be carried on without the use of any preservatives at all by large firms who send their cream direct to their customers; but that there are great difficulties in the case of the "indirect" cream trade, where it is desired to keep the cream fresh for a week in retailers' shops. It is, in fact, alleged that without preservatives the jug-cream trade could not exist at all, especially in summer—a consummation which has apparently been reached in Germany and America, where no preservatives whatever are allowed in cream. France, however, where presumably no preservatives are actually allowed, appears to be doing a thriving trade, both in her own and in this country, in jug-cream, but whether or not her home trade is conducted by some other method of preservation it seems clear that the cream which reaches this country from France contains a considerable amount of chemical preservatives.

In so far as the United Kingdom is concerned, it certainly seems, on a basis of careful experimentation by Dr. A. Harden at the Lister Institute, that in the summer months an addition of 0·15 per cent. of boric acid to the maximum provisionally laid down by the Preservatives Committee may be necessary from May to October inclusive, the maximum of 0·25 per cent. remaining operative during the rest of the year, and this forms one of Dr. Hamill's recommendations. It has, however, been necessary to provide against the addition of this amount of preservative to very thin cream—such, for example, as that which contains as little as 8 to 9 per cent. of fat, and which might be consumed, with its attendant 0·4 per cent. of boric acid, in large quantities with undesirable results. It has, therefore, been recommended that the cream to which the limits of boric acid above referred to are added should contain at least 40 per cent. of milk fat. In all cases the declaration of the preservative should, Dr. Hamill thinks, be made compulsory and adequate and not, as at present, in microscopic letters in out-of-the-way corners of the labels. Some dealers have, it seems, recently intimated on the label that boracised cream is not suitable for infants and invalids, and there is obvious advantage in a declaration such as this; in fact, if it is made and if the amounts of boric acid prescribed are never exceeded the risks should prove practically negligible.

But, nevertheless, there is much to be said for the way in which they deal with these things in the Fatherland—i.e., entire prohibition of all chemical preservatives in cream. Dr. Hamill points out in his report that, notwithstanding the recommendation of the Departmental Committee above referred to, boric acid in definite proportions should be the only preservative permitted in cream. There is a general disposition on all sides to accept this recommendation and to act upon it in the law courts, but nevertheless efforts are being made to introduce in addition into the cream other preservatives, such as sodium salicylate or sodium benzoate, these preservatives being used to reinforce the preservative effect of boric acid. The fact that these additional preservatives are an infringement of the recommendations of the Departmental Committee is quite well known to those who employ them, and who apparently act in the belief and hope that if the analyst finds boric acid in amounts not in excess of the maximum he will not pursue his researches further, and, as Dr. Hamill crisply puts it, "there is reason to believe that their expectations in this respect are frequently realised." It also appears that sodium fluoride—a sufficiently dangerous substance—is sometimes employed as a cream preservative.

Thus we are not altogether out of the wood in this matter of chemically preserved cream, and although there is no need for serious alarm, those who know the difficulty of searching for every conceivable preservative in every sample of cream may wish to have their cream labelled "guaranteed to be free from all preservatives" or to confine their consumption of cream to their visits to Germany. But perhaps if the traders obtain their additional 0·15 per cent. of boric acid during the summer months as a provisional concession pending further research and, it has to be added, also the use of hydrogen peroxide as a preservative, they may think it the better course to abstain from further sophistication lest the Teutonic example be ultimately copied. The cream traders have been treated with great consideration and in a wholesome spirit of compromise by the food department of the Local Government Board, but they must remember that there is a limit to the chemical experimentation which should be carried on within the human test-tube.

MEDICINE AND THE LAW.

A Prosecution under the Public Health Act at Willesden.

AT the Willesden second court recently Mrs. Rose Hibbard, residing at Harlesden, was convicted under section 126 of the Public Health Act, 1875, of wilfully exposing her son while suffering from scarlet fever, the evidence showing that the offence was not only of a dangerous character but was also followed by serious results for others. The boy was excluded from the school which he attended on Sept. 6th on the suspicion that he was suffering from chickenpox, and a health visitor on the following day warned the mother and instructed her to look out for signs of peeling. On Sept. 13th another health visitor called and found that desquamation was taking place, and on the 16th the medical officer at the school examined the child and diagnosed scarlet fever, again warning the mother. On the same day the boy was seen playing with others in the road where he lived, and he also took a ride in a baker's cart. Subsequently to this the mother called in the medical practitioner attending her family, who came to the same conclusion as the school medical officer, informed her, and notified the medical officer of health. There was evidence that the child attended the "Socialist Sunday School" after the mother had been warned, although the father, who was the secretary of the school, did not accept his wife's admission that this had been the case. Apparently as the consequence of the recklessness of Mrs. Hibbard two children of neighbours contracted the disease and became seriously ill, the medical evidence being to the effect that either of these resulting cases might have had a fatal termination. In the circumstances the Bench certainly did not err on the side of severity in inflicting a fine of 20*s.* and in declining to include the fees of the medical witnesses in the costs which the defendant was ordered to pay. This inflicts a hardship not upon the medical profession but upon the sanitary authority and upon the ratepayers. The public might justly have been relieved of as large a proportion as possible of the heavy expense incurred by it owing to the conduct of a person who, as the chairman of the Bench pointed out to her, was not able to plead ignorance or lack of power to understand the nature of her acts. The same gentleman observed that her own motherhood and natural sympathy with other mothers should have caused her to behave differently. It is to be hoped, however, that if the fine inflicted was light the weight of public opinion may make itself felt, and that both Mrs. Hibbard and her husband may realise that the community expects from its members consideration for others in such matters, although this may entail some slight trouble and self-sacrifice on the part of those exercising it. Even in a socialist state the equal distribution of disease by unrestricted infection could hardly be considered desirable, and the defendant and her husband can scarcely be regarded as practical exponents of such doctrines of unselfishness as may be included in the tenets of socialism.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 7920 births and 4066 deaths were registered during the week ending Oct. 9th. The annual rate of mortality in these towns, which had been equal to 13·0, 12·6, and 12·3 per 1000 in the three preceding weeks, rose again to 12·9 in the week under notice. During the 13 weeks of last quarter the annual death-rate in these towns averaged only 11·9 per 1000, and in London during the same period the rate did not exceed 11·4 per 1000. The lowest annual rates of mortality recorded in the 76 towns last week were 5·9 in East Ham, 6·4 in Rotherham, 6·5 in Croydon, and 7·1 in Hornsey; the rates in the other towns ranged upwards, however, to 19·3 in Huddersfield and in Merthyr Tydfil,

19·5 in Bootle, and 21·1 in Bury. In London the recorded death-rate last week did not exceed 12·2 per 1000. The 4066 deaths in the 76 towns last week showed an increase of 187 upon the number returned in the previous week, and included 402 which were referred to the principal epidemic diseases, against numbers declining steadily from 849 to 431 in the six preceding weeks; of these 402 deaths, 230 resulted from diarrhœa, 49 from whooping-cough, 40 from scarlet fever, 30 from measles, 28 from diphtheria, 24 from "fever" (principally enteric), and one from small-pox. The 402 deaths from these epidemic diseases last week were equal to an annual rate of 1·3 per 1000, a lower rate than in any week since the middle of August. No death from any of these epidemic diseases was registered last week in Plymouth, Birkenhead, South Shields, Rochdale, or in six other smaller towns; the annual death-rates therefrom ranged upwards, however, to 3·3 in Coventry and in Merthyr Tydfil, 3·4 in Salford, and 3·8 in Hanley. The deaths attributed to diarrhœa in the 76 towns, which had declined in the six preceding weeks from 676 to 263, further fell last week to 230, but caused annual death-rates ranging upwards in the several towns to 2·1 in Walsall, 2·4 in Gateshead, 2·5 in Hull, and 2·9 in Great Yarmouth. The fatal cases of whooping-cough, which had ranged in the six preceding weeks from 73 to 51, declined last week to 49, of which 21 occurred in London and four in Liverpool. The 40 deaths from scarlet fever showed a further increase upon recent weekly numbers, and included 12 in London and its suburban districts, seven in Birmingham and Smethwick, seven in Manchester and Salford, and two both in Liverpool and in Bolton. The 30 fatal cases of measles showed an increase of 13 upon the low number in the previous week, but caused annual rates equal to 1·3 per 1000 in Coventry and in Merthyr Tydfil, and 2·0 in Newport (Mon.) The deaths from diphtheria, which had been 37 and 43 in the two previous weeks, declined last week to 28, of which six occurred in London and its suburban districts, four in Manchester and Salford, and two in Hanley, in which town nine fatal cases of this disease occurred during last quarter. The 24 deaths referred to "fever" showed a further increase upon the low numbers in the two previous weeks, and included two in West Bromwich. The fatal case of small-pox, the first recorded in the 76 towns since the middle of May, occurred in the Metropolitan Asylums Hospital at Joyce Green. The number of scarlet fever patients under treatment in the Metropolitan Asylums and the London Fever Hospitals, which had steadily increased in the six preceding weeks from 2347 to 2737, had further risen on Saturday last to 2745; 324 new cases of this disease were admitted to these hospitals during last week, against 438 and 373 in the two preceding weeks. Of the 1127 deaths registered in London last week, 186 were referred to pneumonia and other diseases of the respiratory system, against 149 and 132 in the two preceding weeks, and exceeded by 19 the corrected average number in the corresponding week of the five years 1904–08. The causes of 32, or 0·8 per cent., of the deaths registered in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death registered during last week were duly certified in London, Leeds, Bristol, West Ham, Bradford, Newcastle-on-Tyne, Nottingham, Leicester, Salford, and in 49 other smaller towns; the 32 uncertified causes of death in the 76 towns last week included six in Liverpool, five in Manchester, four in Gateshead, and two both in Sunderland and in West Bromwich.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 902 births and 428 deaths were registered during the week ending Oct. 9th. The annual rate of mortality in these towns, which had been equal to 13·8 and 13·1 per 1000 in the two preceding weeks, further declined to 12·0 in the week under notice. During the 13 weeks of last quarter the annual death-rate in these Scotch towns averaged 12·6 per 1000, and exceeded by 0·7 the mean rate during the same period in the 76 large English towns. The annual death-rates last week in these Scotch towns ranged from 7·2 and 10·2 in Greenock and Paisley to 12·7 in Glasgow and 14·8 in Dundee. The 428 deaths from all causes in the eight towns last week showed a further decline of 42 from the numbers in the two previous weeks, and included 45 which were referred to the principal epidemic diseases, against 52 and 48 in the two preceding weeks. These 45 deaths were equal to an annual rate of 1·3 per 1000, and corresponded with the mean rate from the same diseases last week in the 76 English towns. The 45 deaths from these diseases in the Scotch towns last week included 18 from diarrhœa, 12 from diphtheria, seven from scarlet fever, four from "fever," three from measles, and one from whooping-cough, but not one from small-pox. The deaths attributed to diarrhœa in the eight towns, which had been 20 and 22 in the two previous weeks, declined to 18 last week, of which eight occurred in Glasgow, three in Dundee, and two each in Edinburgh, Paisley, and Leith. The 12 deaths from diphtheria showed a further increase upon the numbers in recent weeks, and included eight in Glasgow against seven and four in the two previous weeks. Of the seven fatal cases of scarlet fever three occurred in Edinburgh, and two both in Glasgow and in Aberdeen. The four deaths referred to "fever" included two both in Glasgow and in Edinburgh; three were certified as enteric, and one (in Edinburgh) as cerebro-spinal meningitis. The three fatal cases of measles occurred in Glasgow. The deaths referred to diseases of the respiratory system in the eight towns, which had been 41, 59, and 66 in the three preceding weeks, declined again last week to 59, and were three below the number in the corresponding week of last year. The causes of 15, or 3·5 per cent., of the deaths in the eight towns last week were not stated or not certified; in the 76 English towns the proportion of uncertified causes of death last week did not exceed 0·8 per cent.

HEALTH OF IRISH TOWNS.

In 22 town districts of Ireland, having an estimated population of rather more than a million, 581 births and 330 deaths were registered during the week ending Oct. 9th. The annual rate of mortality in these towns, which had been equal to 15·1, 16·9, and 16·2 per 1000 in the three preceding weeks, declined again to 15·1 in the week under notice. During the 13 weeks of last quarter the annual death-rate in these Irish towns averaged 15·8 per 1000, whereas during the same period the death-rate did not exceed 11·9 in the 76 largest English towns and 12·6 in the eight principal Scotch towns. The annual death-rate last week was equal to 16·8 in Dublin (against 19·5 and 17·5 in the two previous weeks), 12·8 in Belfast, and 21·0 in Cork, and ranged in the smaller Irish towns from 3·9 and 5·1 in Waterford and Clonmel, to 19·7 in Kilkenny, 22·9 in Newtownards, and 32·7 in Drogheda. The 330 deaths from all causes in the 22 towns last week showed a decline of 24 from the number in the previous week, and included 37 which were referred to the principal epidemic diseases, against 42 in the previous week; these 37 deaths were equal to an annual rate of 1·7 per 1000, against rates last week from the same diseases not exceeding 1·3 in the English and in the Scotch towns. The 37 deaths from these epidemic diseases in the 22 Irish towns last week included 22 from diarrhœa, 10 from whooping-cough, three from "fever" (enteric), and one each from measles and diphtheria, but not one either from scarlet fever or small-pox. The 22 fatal cases of diarrhœa showed a decline of six from the number in the previous week, and included 11 in Belfast, five in Dublin, and four in Cork. The 10 deaths from whooping-cough included three both in Dublin and in Belfast, and two in Cork. Two of the three deaths from enteric fever occurred in Belfast. The 50 deaths referred to pneumonia and other diseases of the respiratory system last week in the 22 towns were fewer by six than the number in the previous week. The causes of seven, or 2·1 per cent., of the deaths in the 22 towns last week were not certified by a registered medical practitioner or by a coroner; in the 76 English towns the proportion of uncertified causes of death last week did not exceed 0·8 per cent., while it was equal to 3·5 per cent. in the eight Scotch towns.

VITAL STATISTICS OF LONDON DURING SEPTEMBER, 1909.

IN the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases, it appears that the number of persons reported to be suffering from

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING SEPTEMBER, 1909.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1909.	NOTIFIED CASES OF INFECTIOUS DISEASE.											DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.										Deaths from all causes.	Death-rate per 1000 living.	Deaths of infants under one year to 1000 births.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa.	Total.	Annual rate per 1000 persons living.			
LONDON...	4,833,938	—	2047	666	—	113	5	22	428	9	3290	7·1	—	30	27	51	93	—	10	1	591	803	1·7	5346	11·5	138
West Districts.																										
Paddington	151,955	—	81	20	—	2	—	—	13	—	116	8·0	—	—	—	2	—	—	1	—	11	14	1·0	126	8·6	114
Kensington	183,683	—	56	18	—	4	—	—	14	1	93	5·3	—	—	—	2	—	—	—	—	20	22	1·2	178	10·1	148
Hammersmith	125,704	—	30	26	—	4	—	—	7	—	67	5·6	—	1	1	1	4	—	1	—	16	24	2·0	134	11·1	175
Fulham	176,406	—	63	24	—	1	—	1	10	—	99	5·8	—	1	1	1	4	—	—	—	38	45	2·7	177	10·5	152
Chelsea	75,249	—	31	4	—	1	—	—	4	—	40	5·5	—	1	—	—	1	—	—	—	7	9	1·2	72	10·0	142
City of Westminster	168,883	—	50	32	—	1	—	1	8	2	94	5·8	—	1	—	3	—	—	—	—	3	7	0·4	150	9·3	107
North Districts.																										
St. Marylebone	126,027	—	70	9	—	3	—	—	7	—	89	7·4	—	—	—	—	2	—	—	—	3	5	0·4	134	11·1	53
Hampstead	94,185	—	24	7	—	3	—	1	2	—	37	4·1	—	1	—	1	—	—	—	—	—	2	0·2	55	6·1	81
St. Pancras	237,422	—	103	43	—	—	—	2	19	1	168	7·4	—	—	1	—	2	—	1	—	18	22	1·0	278	12·2	136
Islington	351,202	—	173	48	—	12	—	1	39	1	274	8·1	—	1	1	—	1	—	—	—	29	32	1·0	365	10·8	125
Stoke Newington	54,423	—	5	4	—	—	—	—	2	—	11	2·1	—	—	—	1	1	—	—	—	1	3	0·6	47	9·0	105
Hackney	237,601	—	121	17	—	3	—	2	30	—	173	7·6	—	—	—	—	2	—	—	—	27	29	1·3	207	9·1	130
Central Districts.																										
Holborn	53,802	—	5	3	—	2	—	1	4	—	15	2·9	—	—	—	—	4	—	—	—	4	8	1·6	84	16·3	103
Finsbury	95,289	—	21	25	—	3	—	—	14	—	63	6·9	—	1	—	5	5	—	—	—	19	30	3·3	136	14·9	117
City of London	18,193	—	2	3	—	—	—	—	1	—	6	3·4	—	1	—	1	—	—	—	—	1	3	1·7	26	14·3	138
East Districts.																										
Shoreditch	114,802	—	44	10	—	3	—	—	16	—	73	6·6	—	3	1	—	5	—	—	—	34	43	3·9	198	18·0	229
Bethnal Green	131,316	—	102	15	—	3	—	—	15	1	136	10·8	—	1	5	1	3	—	—	—	43	53	4·2	194	15·4	213
Stepney	312,525	—	111	43	—	10	—	—	46	—	210	7·0	—	6	—	3	9	—	—	—	44	62	2·1	406	13·5	160
Poplar	171,965	—	104	21	—	8	—	1	24	—	158	9·6	—	5	2	2	2	—	—	—	45	56	3·4	261	15·8	169
South Districts.																										
Southwark	211,125	—	86	19	—	3	—	—	21	—	129	6·4	—	—	1	3	5	—	1	—	43	53	2·6	297	14·7	183
Bermondsey	127,569	—	54	17	—	—	—	—	13	—	84	6·9	—	—	2	3	4	—	—	—	22	31	2·5	195	15·9	177
Lambeth	324,188	—	126	46	—	4	1	—	17	—	194	6·2	—	4	3	7	4	—	—	1	44	63	2·0	360	11·6	122
Battersea	186,036	—	78	33	—	10	—	—	20	—	141	7·9	—	2	1	—	5	—	2	—	18	28	1·6	173	9·7	126
Wandsworth	297,646	—	83	32	—	10	1	4	13	—	143	5·0	—	—	1	2	5	—	1	—	20	29	1·0	278	9·7	115
Camberwell	283,022	—	142	43	—	6	—	2	22	—	215	7·9	—	1	2	6	3	—	1	—	35	48	1·8	294	10·8	119
Deptford	118,583	—	42	22	—	9	2	1	19	—	95	8·4	—	—	2	—	14	—	1	—	12	29	2·6	132	11·6	143
Greenwich	111,014	—	34	14	—	5	1	2	9	3	68	6·4	—	—	1	2	1	—	1	—	17	22	2·1	128	12·0	144
Lewisham	160,749	—	93	45	—	2	—	1	4	—	145	9·4	—	—	1	4	2	—	—	—	11	18	1·2	135	8·8	99
Woolwich...	133,374	—	113	23	—	1	—	2	15	—	154	12·0	—	—	1	1	5	—	—	—	6	13	1·0	128	10·0	67
Port of London	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

one or other of the nine diseases specified in the table was equal to an annual rate of 7·1 per 1000 of the population, estimated at 4,833,938 persons in the middle of the year; in the three preceding months the rates were 6·5, 6·4, and 5·0 per 1000 respectively. The lowest rates last month were recorded in Kensington, Chelsea, Hampstead, Stoke Newington, Holborn, the City of London, and Wandsworth; and the highest rates in Paddington, Islington, Bethnal Green, Poplar, Deptford, Lewisham, and Woolwich. Scarlet fever was much more prevalent than it had been in the preceding month; the greatest proportional prevalence of this disease was recorded in St. Marylebone, Bethnal Green, Poplar, Lewisham, and Woolwich. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals, which had been 2539, 2628, and 2329 at the end of the three preceding months, had risen again to 2717 at the end of last month; the weekly admissions averaged 394, against 353, 358, and 274 in the three preceding months. The prevalence of diphtheria also showed an increase compared with that in other recent months; among the various metropolitan boroughs this disease was proportionally most prevalent in Hammersmith, the City of Westminster, St. Pancras, Finsbury, Deptford, and Lewisham. The Metropolitan Asylums Hospitals contained 901 diphtheria patients at the end of last month, against 890 and 795 at the end of the two preceding months; the weekly admissions averaged 119, against 105, 107, and 83 in the three preceding months. Enteric fever continued to show an increasing prevalence; this disease was proportionally most prevalent last month in Islington, Holborn, Poplar, Battersea, Wandsworth, Deptford, and Greenwich. The number of enteric fever patients under treatment in the Metropolitan Asylums Hospitals, which had been 58, 60, and 55 at the end of the three preceding months, had risen again to 75 at the end of last month; the weekly admissions averaged 13, against nine, seven, and ten in the three preceding months. Erysipelas was proportionally most prevalent in Hackney, Finsbury, Shoreditch, Stepney, Poplar, and Deptford. The 22 cases of puerperal fever notified during the month included four in Wandsworth and two each in St. Pancras, Hackney, Camberwell, Greenwich, and Woolwich. Of the nine cases notified as cerebro-spinal meningitis three belonged to Lewisham and two to the City of Westminster.

The mortality statistics in the table relate to the deaths of persons actually belonging to the various boroughs, the deaths occurring in institutions having been distributed among the several boroughs in which the deceased persons had previously resided. During the five weeks ending Oct. 2nd the deaths of 5346 London residents were registered, equal to an annual rate of 11·5 per 1000; in the three preceding months the rates were 11·1, 10·2, and 10·5 per 1000. The lowest rates recorded last month were 6·1 in Hampstead, 8·6 in Paddington, 8·8 in Lewisham, 9·0 in Stoke Newington, 9·1 in Hackney, and 9·3 in the City of Westminster; the highest rates were 14·7 in Southwark, 14·9 in Finsbury, 15·4 in Bethnal Green, 15·8 in Poplar, 15·9 in Bermondsey, 16·3 in Holborn, and 18·0 in Shoreditch. The 5346 deaths from all causes included 803 which were referred to the principal infectious diseases; of these 30 resulted from measles, 27 from scarlet fever, 51 from diphtheria, 93 from whooping-cough, 10 from enteric fever, one from ill-defined pyrexia, and 591 from diarrhœa, but not any from small-pox or from typhus fever. The lowest death-rates from these diseases last month were recorded in the City of Westminster, St. Marylebone, Hampstead, and Stoke Newington; and the highest rates in Fulham, Finsbury, Shoreditch, Bethnal Green, Poplar, Southwark, Bermondsey, and Deptford. The 30 deaths from measles were 34 fewer than the corrected average number in the corresponding period of the five preceding years; this disease was proportionally most fatal in Shoreditch, Stepney, Poplar, and Lambeth. The 27 fatal cases of scarlet fever showed a decline of 19 from the corrected average number; the greatest proportional mortality from this disease was recorded in Bethnal Green, Poplar, Bermondsey, Lambeth, and Deptford. The 51 deaths from diphtheria were 13 below the average for the corresponding period of the five preceding years; among the metropolitan boroughs this disease caused the highest death-rates in the City of Westminster, Finsbury, Bermondsey, Lambeth, Camberwell, Greenwich, and Lewisham. The 93 fatal cases of whooping-cough showed an excess of eight over the corrected average number; this disease was proportionally most fatal in Hammersmith, Holborn, Finsbury, Shoreditch, Bermondsey, Deptford, and Woolwich. The 11 deaths referred to "fever" were 26 below the corrected average number in the corresponding period of the five preceding years; of these 11 deaths, two belonged to Battersea and one each to nine other boroughs. The 591 fatal cases of diarrhœa were 447 below the corrected average; the greatest proportional mortality from this disease was recorded in Fulham, Finsbury, Shoreditch, Bethnal Green, Poplar, and Southwark. In conclusion, it may be stated that the aggregate mortality in London last month from these principal infectious diseases was 39 per cent. below the average.

Infant mortality, measured by the proportion of deaths under one year of age to registered births, was equal to 138 per 1000. The lowest rates of infant mortality were recorded in St. Marylebone, Hampstead, Stoke Newington, Holborn, Lewisham, and Woolwich; and the highest rates in Hammersmith, Shoreditch, Bethnal Green, Stepney, Poplar, Southwark, and Bermondsey.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet-Surgeons: H. X. Browne to the *Europa*, H. B. Hall to the *Lancaster*, A. G. Wildey to the *Venerable*, on commissioning, and H. Holyoake to the *Vivid*. Staff-Surgeons: J. Mowatt to the *Cressy*, on recommissioning, and J. D. S. Milln to the *Hawke*. Surgeon: J. McCutcheon to the *Venerable*, on commissioning.

ROYAL ARMY MEDICAL CORPS.

The following tour-expired officers from India will proceed to England: Lieutenant-Colonel Forrest, Major Burnside, Major Thacker, Major Clark, Major Kiddle, and Captain Patch, by the *Rohilla*, on Oct. 14th, from Bombay. Lieutenant-Colonel Blackwell, Major Jennings, Captain Pallant, Captain Turner, and Captain MacNicol, by the *Dongola*, on Oct. 27th, from Bombay. Lieutenant-Colonel Jencken, Lieutenant-Colonel Lequesne, Major Mudlison, Major Winter, Major K. Read, and Captain Vaughan, by the *Plassy*, on Nov. 5th, from Bombay. Lieutenant-Colonel Aldridge, Captain J. Richmond, Captain Harding, Captain Hole, and Captain Grant, by the *Rohilla*, on Dec. 10th, from Karachi. Lieutenant-Colonel Nicholls, Lieutenant-Colonel Haines, Lieutenant-Colonel O'Callaghan, Major Innis, Captain Meadows, and Captain Ahern, by the *Dongola*, on Dec. 31st, from Karachi. Lieutenant-Colonel Wilson, Lieutenant-Colonel Rowan, Captain Carter, Captain Hildreth, Captain Osburn, Captain Wiley, and Captain Otway, by the *Plassy*, on Jan. 11th, 1910, from Bombay. Lieutenant-Colonel Cocks, Lieutenant-Colonel Elkington, Major Dalton, Captain Hall, Captain Fairbairn, Captain Arthur, Captain Watson, by the *Dufferin*, on Jan. 25th, from Bombay. Lieutenant-Colonel Swan, Major Anderson, Captain P. Collins, Captain Hull, by the *Rewa*, on Feb. 2nd, from Karachi. Lieutenant-Colonel Gordon-Hall, Major Grech, Captain Wetherall, and Captain Douglass, by the *Rohilla*, on Feb. 11th, from Karachi. Lieutenant-Colonel Gordon, Major Luther, Captain Hardy, Captain Johnstone, and Captain Lewis, by the *Dongola*, on March 2nd, from Bombay. Lieutenant-Colonel W. W. Pike, Lieutenant-Colonel J. R. Stuart, Major T. MacDermott, Captain J. A. Turnbull, Captain F. J. Garland, Captain F. M. M. O'Omanney, Captain F. H. Noke, and Captain O. E. Cathcart, by the *Plassy*, on March 11th, from Bombay.

Captain M. F. Foulds has been appointed specialist in advanced operative surgery for the Belfast District.

The undermentioned Captains, from the Seconded List, are restored to the establishment (dated Sept. 27th, 1909):—Francis J. Brakenridge and Raymond L. V. Foster.

INDIAN MEDICAL SERVICE.

Captain White has been appointed specialist in advanced operative surgery 8th (Lucknow) Division, *vice* Captain Browne, R.A.M.C. Lieutenant Russell, Brigade Laboratory, Bangalore, has been appointed specialist in the prevention of disease. The services of Captain Peebles are placed at the

* Including membranous croup.

disposal of the Punjab Government for employment in the analyst's department. Captain Nutt is temporarily posted to the United Provinces. Major Sutherland, principal and professor of medicine, Medical College, Lahore, is confirmed in that appointment; and Major Hugo, professor of surgery, Medical College, Lahore, is also confirmed in that appointment. Captain Hamilton is selected permanently for appointment in the Jail Department. Lieutenant-Colonel Baker and Major Pigon and Major Daniell retire from the Indian Medical Service.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Supplementary List, Lieutenant William M. Browne, from the Army Medical Reserve, to be Lieutenant, and to retain the rank and seniority which he held in the Army Medical Reserve (dated Sept. 23rd, 1909). John Charles Hall to be Lieutenant (dated August 18th, 1909).

TERRITORIAL FORCE.

Royal Army Medical Corps.

3rd London (City of London) Field Ambulance: Reginald Martin Vick to be Lieutenant (to be supernumerary) (dated July 23rd, 1909).

For Attachment to Units other than Medical Units.—Lieutenant Henry S. Walker to be Captain (dated April 1st, 1908).

Surgeon-Major James Harris Garcia Whiteford, from The Clyde Division (Electrical Engineers), Royal Engineers (Volunteers), to be Major, with precedence as in the Volunteer Force (dated April 1st, 1908).

Surgeon-Captain John Rowan, from The Clyde Division (Electrical Engineers), Royal Engineers (Volunteers), to be Captain, with precedence as in the Volunteer Force (dated April 1st, 1908).

THE COURSE OF INSTRUCTION AT HASLAR.

The course of instruction of the newly entered surgeons at Haslar was brought to a close on Oct. 6th by the distribution of prizes by Inspector-General Thomas D. Gimlette, C.B., R.N. The gold medal was gained by Surgeon A. A. Sanders of the University of Birmingham and the silver medal was awarded to Surgeon K. H. Hole of Guy's Hospital. These officers also took the first and second places respectively in the combined London and Haslar examinations. Three navy regulation pocket-cases—prizes for subjects in which instruction is given at Haslar—were awarded to Surgeon Sanders, Surgeon M. P. Fitzgerald, and Surgeon G. F. Syms. The following list shows the places gained by the combined marks of the London and Haslar examinations:—

	Marks.		Marks.
A. A. Sanders	5178	J. Barrett	4399
K. H. Hole	5152	G. A. Jackson	4205
G. F. Syms	5051	W. Miller	4167
H. F. Briggs	4944	R. P. M. Roberts	3997
M. P. Fitzgerald	4873	A. G. Malcolm	3908
J. Hadwen	4479	H. C. Devas	3749
J. S. Orwin	4423	H. W. Nicholls	3642

Of these 14 surgeons 10 possessed University degrees.

JOURNAL OF THE ROYAL ARMY MEDICAL CORPS.

The October issue of this journal opens with an introductory article on the Medical History of the South African War from the pen of Lieutenant-Colonel R. J. S. Simpson, C.M.G. Referring to the unjust criticisms of our sanitation during the war, the writer is of opinion that some were prompted by the parochial tendency of the average man devoid of imagination, others were the habitual, probably unthinking, criticisms which must always be expected, and others founded on mis-statements of fact. He believes that when the actual incidence of disease is considered in all its relations it will be found that the results, though not such as would be expected under our present improved organisation, are better than is generally believed. Lieutenant-Colonel T. Du B. Whaite writes some personal recollections of the early months of the South African War, which show that the risks run by the medical officer may often be as great as those of his brother in the fighting line. There is much exciting incident in the recollections, and the paper will be perused with interest. Among the other contents of the journal are some remarks on the treatment of gonorrhœa in Malta, by Major C. E. Pollock, R.A.M.C., chiefly with reference to the irrigation treatment, and a note on a method of securing dressings without the use of bandages by means of gelatin. The writer, Major F. J. W. Baker, D.S.O., gives credit for the idea to Mr. B. G. A. Moynihan of Leeds.

THE NAVAL MEDICAL SUPPLEMENTAL FUND.

At the quarterly meeting of the directors of the Naval Medical Supplemental Fund, held on Oct. 12th, Sir C. J. Thomas, K.C.B., in the chair, the sum of £40 was distributed among the several applicants.

Correspondence.

"Audi alteram partem."

THE TREATMENT OF SYPHILIS BY INTRAMUSCULAR INJECTIONS OF INSOLUBLE PREPARATIONS OF MERCURY.

To the Editor of THE LANCET.

SIR,—We have read with interest Dr. G. Pernet's paper in THE LANCET of July 24th "On Intramuscular Treatment of Syphilis," and the "Critical Rejoinder" of Major H. C. French in your issue of Sept. 25th, as well as the reply of Dr. Pernet in your issue of Oct. 9th. Dr. Pernet is quite able to defend himself against the attack of the gallant major and does not require any support from us, but as the value of the method of treating syphilis by intramuscular injections of insoluble preparations of mercury is the matter at issue we feel we have some title to join in the conflict. In the past five years we have made a very extensive trial of grey oil in the treatment of syphilis both in hospital and private practice, and have administered several thousand injections, and we are firmly convinced that it is one of the most efficient remedies for syphilis at our disposal.

Every opponent of the use of intramuscular injections of insoluble preparations of mercury ransacks the literature to discover fatalities following their use; and every now and then, though at ever-increasing intervals, a fresh death is discovered. We have no hesitation in suggesting, in the light of present-day knowledge, that with ordinary care every one of these deaths might have been prevented. In some of the fatal cases recorded no details as to the doses administered were given, and in others there is no indication as to who administered the injections. These two points are of prime importance, for if no record of the dose is kept, and as in some hospitals in this country and in France untrained porters, dispensers, or orderlies are allowed to administer the injections, the wonder is that disasters do not occur more frequently.

We would strongly endorse Dr. Pernet's statement, "That when intramuscular injections of grey oil are carried out with care and precaution complications do not arise." But we insist on more care and precaution than Dr. Pernet would seem to indicate, for in addition to examining the urine of patients for albumin we make periodical examinations to ascertain the rate at which the mercury is being eliminated by the kidneys. Only by doing so can we be sure that mercurial stasis is not occurring in the system, and our repeated examinations have enabled us to forecast with a tolerable measure of accuracy the number of weeks that elapse before the mercury disappears from the urine of a patient after a course of 12 or more injections. Deficient elimination leads us at once to diminish the dose or interrupt the treatment. We have also taken skiagrams of the Hg in the muscles and have estimated the number of days required for an injection to be completely absorbed. By taking these precautions, and by gradually improving our technique of administering injections, we have so far avoided all complications.

It has not been our experience that patients take only one injection and never come again. Some years ago we made statistics of the attendance at hospital of syphilitic patients before and after we began to employ intramuscular injections, and we found that patients treated by injections attended much more regularly than those treated by oral medication. We do not believe that "severe relapses are twice as frequent after injections as after the inunction or pill treatment," nor are we alarmed by the bogey of salivation. The severest cases

of salivation we have ever seen have been in patients treated with hydrargyrum cum creta, and we have seen patients with severe ptyalism produced by oral medication with syphilitic lesions that showed no sign whatever of yielding to the mercury which had been administered. Only a few days ago we saw a young man who had been taking 6 grains of hydrargyrum cum creta daily till marked gingivitis appeared without the slightest improvement in a large papular eruption on his face, and two years ago a young man, aged 30 years, came under our care who for five months had been taking 4 grains of hydrargyrum cum creta daily till he was salivated, and yet without any amelioration of a copious papulo-pustular syphilitic eruption which covered his whole body. An examination of his urine showed that though he was suffering from gingivitis he was eliminating mercury in a fair quantity by his kidneys. In spite of the condition of his gums we did not hesitate to begin intramuscular injections, and his ptyalism disappeared, and his eruption rapidly cleared up under injections of grey oil. He received at weekly intervals four injections of 14 cgs. of metallic mercury, and then 14 injections of 7 cgs. each, and then at intervals of a fortnight two injections of 10 cgs., and when last seen was in splendid health and had put on weight.

We are surprised that Major French should lend the weight of his authority to the recommendation "that weekly insoluble injections of standardised grey oil should not ever be made for over six weeks, and in certain cases four weeks." Each case should be treated on its merits, and it may occasionally be advisable to give a patient such scanty treatment. But our experience has been that larger doses than his (Hg—grain 1) may be safely administered for 12 or more consecutive weeks, and we are prompted to wonder whether it is for this reason —viz., inadequate dosage—that Major French has been led to conclude that "Injections of insoluble salts of mercury ..... have not the same curative action on syphilis in the early stages as ..... inunction or hydrargyrum cum creta with opium." We have great confidence in intramuscular injections, and so have all our patients who previously have had experience of other treatment. Our experience has been that in medical circles the strongest opponents of the method are those who have never tried it.

We are, Sir, yours faithfully,

STOPFORD TAYLOR,
Liverpool, Oct. 11th, 1909. R. W. MACKENNA.

IS SNOW-WATER UNWHOLESOME?

To the Editor of THE LANCET.

SIR,—The theory that endemic bronchocele and cretinism are due to drinking snow-water is of considerable antiquity. Peter Lowe, in 1612 ("A Discourse of the Whole Art of Chirurgery," Lib. V., cap. 40), speaking of the causes of "The Tumour in the Neck or Cragg, called Broncocele or Hernia Gutturosa," says:—

> Some are externall, and some internall, proceeding of a cold and humid ayre, drinking of evill water, as those who dwel in Pimount, and about the Alpes are much subject, because the most part of their drink is melted snow: it happeneth also by the retention of monethly courses in women, and Hemorrhoides in men, with great repletion of the melancholique humor in both sexes.

Lowe gives as his authorities, Chelmetius (Enchiridion Chirurgicum) and Arnaldus de Villa Nova. I cannot trace Chelmetius, but Arnaldus lived between 1235 and 1312 A.D. In his Breviarium (Lib. II., cap. 4. Ed. Basle 1575) he describes the swelling in the throat which Arabians call "Botium." In certain districts, for instance, in Cophiane, he says that all men and women, or the greater part of them, are so affected, "forte ex naturâ aeris vel aquarum," and he adds that they cannot be cured, "nisi ad aliam aquam, vel aerem alium traducuntur." He does not, therefore, attribute the disease specifically to snow-water, but to some impurity in the air or water of the country.

John Evelyn, who in medical knowledge was usually up to date, refers in his diary for 1645 to the goitrous cretins whom he saw on his journey across the Alps.

> "Their drinking so much snow-water," he says, "is thought to be the cause of it; the men using more wine are not so strumous as the women. The truth is that they are a peculiar race of people, and many greate water-drinkers here have not these prodigious tumours; it runs as we say, in the bloud, and is a vice in the race."

The belief that goitre is caused by snow-water was held in the middle of the last century, for B. Nièpce ("Traité du Goitre et des Crétinismes," Paris, 1851) discusses and dismisses the view on the grounds that goitre and cretinism are not seen in high altitudes where only snow-water is obtainable. Perhaps this old doctrine that snow-water causes so terrible a condition as goitrous cretinism has led to the belief that snow-water is generally unwholesome. Like your other correspondents, I am curious to know whether there are any other grounds for the statement. Theoretically, snow-water, like rain-water, should be the purest of beverages, and it is interesting that rain-water has only recently been advocated as a remedy for goitre.

I am, Sir, yours faithfully,

LEONARD G. GUTHRIE.
Upper Berkeley-street, W., Oct. 12th, 1909.

PS.—"Snow-water," I assume, is the result of artificially melted snow.

THE HYPNOTIC TREATMENT OF MORPHINISM.

To the Editor of THE LANCET.

SIR,—In the treatment of drug addictions, as of disease generally, two totally opposite points of view may be adopted. By some a malady is looked upon as a something to be expelled by something to be taken. For headache, for instance, *take* phenacetin, for rheumatic pain *take* aspirin, for addiction to a given drug *take* a different drug. By others this routine prescription of medicines is held to be an encouragement of fetichism, and although we cannot always do without them it is maintained that they should only be prescribed exceptionally, that our main reliance should be upon preventive hygiene and dietetic measures, together in what are termed nervous ailments, with re-education of self-restraint, character, and judgment. In THE LANCET of Oct. 2nd Dr. C. J. Douglas advocates the first of these plans in the treatment of morphinism. Whilst recognising the advisability of any treatment that can overcome habit in the case of an inveterate drug-fiend, incapable of recuperation of self-control, for the ordinary *habitué* who continues the use of morphia only because he has never been able to renounce it entirely, the "knocking-out" (as the Americans call it) of any drug addiction by a still stronger narcotic is, I would submit, very bad practice, and only exceeded in harmfulness by the method recommended by Sir William Whitla of keeping the patient in a state of alcoholic intoxication.

The temporary suppression of morphia by such a plan is not difficult, but such a suppression does not constitute a cure of habit, which can only be effected by a restoration of resolution to have nothing to do with narcotics. To teach that one narcotic is a panacea for another is, in my experience, to ensure future relapse, as an ex-*habitué* is sure to return in times of insomnia, irritability, or depression to what he has previously found preventive of suffering and will almost infallibly revert to the former condition. This is the opinion of Dr. Kellogg of Battle Creek, who insists upon the necessity for drug addicts of a return to a natural life, after a weaning without drugging. An equally eminent authority, Dr. T. D. Crothers, of Hartford, Connecticut, considers it is true that "drug restraint and narcotism are demanded imperatively in some cases," but his general experience is against it, and he says that "the substitution of even a mild narcotic early in treatment has been very unsatisfactory." "Insomnia," he adds, "should not be treated by hypnotics with any degree of regularity. The danger of another addiction is so great that it is unwise to use any of the hypnotics except for a brief time."

In his more recent essay on "Drugs and the Drug Habit" Dr. Harrington Sainsbury looks upon the cure of addiction as almost entirely a question of re-education of self-control. "The kernel of the system," he says, "must be re-educational." If the patient is treated in an institution "self-restraint all round will be the key-note of treatment." This is his doctrine, and even as regards suggestion, hypnotic influence that takes the place of the will and which is the psychological correlate of hypnotic drugging is to be condemned. Hypnotism should not be used as counselled by Dr. Quackenbos at a recent congress as a *substitute* for the will. When, says Dr. Sainsbury, a patient is influenced in this way (and the same applies to hypnotic drugging), "his

reformation is not reform at all so far as he is concerned; he has been reformed from without, but inwardly he is wholly unregenerate. The will power must be led forth from its retreat." I should like to quote more fully from Dr. Sainsbury's learned and philosophical work, which should be read and meditated by every drug *habitué*, but those of your readers who are interested in this subject are, no doubt, acquainted with it already.

In conclusion, I would suggest that Dr. Douglas should make known through THE LANCET the after-history of his cases. An easy cure without the intervention of personal effort is, in my opinion, a premium to renewed indulgence, but if the results claimed for this method have stood the test of time the publication of statistics of cases permanently cured will be most interesting.

I am, Sir, yours faithfully,

Oct. 5th, 1909. OSCAR JENNINGS, M.D. Paris.

THE ANTITRYPTIC INDEX IN DIAGNOSIS.

To the Editor of THE LANCET.

SIR,—In your first leading article in to-day's issue of THE LANCET you allude to the non-specificity of the rise of the antitryptic index of the serum in malignant disease. This statement I can thoroughly endorse as a similar rise occurs in all of the general bacterial diseases so far examined, as well as in numerous conditions in no way associated with bacterial activity. The rise in antitryptic values in all these conditions I have long considered as possibly an index of the liberation of endocellular enzymes and other products owing to cell-destruction, and not merely of leucocytic products as your article suggests. In spite, however, of this non-specificity there is a limited range within which estimation of the antitryptic index is of the greatest diagnostic value in the differential diagnosis of cancer. In cases where the index is normal discoverable cancer can be almost positively excluded, six cases of 100 failing to conform to this rule. Since 94 of these cases showed a rise, the great value of the method lies in the demonstration not of rise but of absence of rise. Your article reflects only on the inverse of this. I have elsewhere shown how this mode of blood examination can, in conjunction with other clinical evidence, enable us to distinguish in many cases ulcer of the stomach from carcinoma of that organ, benign stenosis of the œsophagus from malignant, the presence or absence of malignant mediastinal neoplasm, carcinoma mammæ from simple growths, benign cerebral tumours from malignant, and so on, and guide us as to recurrence. Hence, feeling as I do that, within the limits I have indicated, the estimation of antitryptic values is often of great service in diagnosis, as well as in other no less important directions, I venture to hope you will find room for this letter, and in so doing correct an impression of the worthlessness of the method that might arise from the perusal of your article.

Of all the numerous observations which I have published and of others as yet unpublished, I have not yet encountered a rise in antitryptic index which could not be confirmed by other methods of estimation undertaken by other observers. This holds true of the chemical method, the viscosity method, and that of electro-conductivity. I know of few blood estimations capable of corroboration by three distinct reliable methods.

I am, Sir, yours faithfully,

Harley-street, W., Oct. 9th, 1909. E. C. HORT.

THE STANDARDISATION OF THE DIGITALIS SERIES OF HEART TONICS.

To the Editor of THE LANCET.

SIR,—On June 19th last there was published in THE LANCET a paper entitled "Proposed International Standard for the Physiological Assay of the Heart Tonics of the Digitalis Series," which I read before the Seventh International Congress of Applied Chemistry on May 31st, 1909. Since this paper was published I have deemed it wise to modify my definition of a heart tonic unit, and would be pleased if you will give publicity to the following statement, which is taken from a paper presented before the American Pharmaceutical Association on August 19th:—

Ten times the normal minimum fatal dose (M.F.D.) per gramme body weight of frog of the injected drug properly diluted for the standard preparation is considered as a heart tonic unit (H.T.U.); consequently the number of H.T.U. in a given cubic centimetre of a preparation of the heart tonics is equal to one-tenth of the quotient obtained by dividing 1 by such M.F.D.—i.e., the number of H.T.U. in each cubic centimetre of fluid is one-tenth of the reciprocal of the M.F.D. To illustrate: If the minimum fatal dose of a given drug per gramme body weight of a frog is found to be equivalent to 0·01, then the given substance, assuming that it belongs to the group of heart tonics, would contain 10 heart tonic units: M.F.D. $\frac{1}{0{\cdot}01} = 10 = 10$ H.T.U.

Definition.—A heart tonic unit (H.T.U.) is ten times the normal minimum fatal dose per gramme body weight of standard test frogs kept under proper test conditions. This rule can be applied to any of the heart tonics as a means of expressing such values in whole numbers.

It is to be understood that the H.T.U. is a measure of toxic value, although such toxic values may be translated directly into therapeutic values, based on the U.S.P. average dose or any other dose, but there is great discrepancy in doses for the preparations which we expect in the near future to consider in another paper.

Proposed Standards for the Most Important Preparations of the Digitalis Series of the Heart Tonics.

—	M.F.D.	Exact No. of H.T. units per c.c.	No. of H.T. units in round numbers per c.c.
Digitalis:			
Extract	0·0005	200	200
Fluid extract, U.S.P. 1890	0·0015	66	65
Tincture, U.S.P. 1900	0·015	6	6
Digitalin (Germanic)	0·00005	2000	2000
Squill:			
Fluid extract, U.S.P. 1890	0·0012	83	80
Strophanthus:			
Tincture, U.S.P. 1900	0·0000833	1200	1200
Convallaria—Fluid extract:			
Rhizome and roots, U.S.P.	0·00025	400	400
Herb	0·00015	666	650
Flowers	0·00009	1111	1100

I am, Sir, yours faithfully,

E. M. HOUGHTON, M.D.

Detroit, Michigan, Sept. 30th, 1909.

THE BENHAM TOP.

To the Editor of THE LANCET.

SIR,—Mr. C. E. Benham asks in THE LANCET of Oct. 2nd why, if my explanation of the phenomena of his top be the correct one, the green colour seen as the after-image of the black disc is not seen on the black lines. It should be noted that the red colour appears on the black lines corresponding to a portion of the retina which has not been stimulated at all because for that portion of the retina the black lines are only a continuation of the black disc. This seems to have been generally overlooked by those who have offered an explanation. We have therefore to account for the red colour appearing on a part of the top corresponding to a portion of the retina which has not been stimulated by light. The conditions are perfect for a contrast phenomenon, as there is a large mass of a dilute colour and a small dark portion. In many contrast experiments the induced colour so overpowers the inducing colour as to make it very difficult to ascertain the presence of the latter.

I am, Sir, yours faithfully,

Hendon, Oct. 7th, 1909. F. W. EDRIDGE-GREEN.

VACCINATION WITH ATTENUATED LIVE CULTURES.

To the Editor of THE LANCET.

SIR,—Referring to my paper with the above title, published in THE LANCET of August 21st, I beg to draw attention to the fact that while typhoid vaccine (dead or alive) may be with advantage prepared with *broth cultures*, the dead or live dysentery vaccine and the mixed dysentery-typhoid vaccine should always be prepared with *pepton-water cultures*, as the inoculation of broth cultures of the Shiga-Kruse bacillus often induces a very painful infiltration at the seat of the inoculation.

I am, Sir, yours faithfully,

Colombo, Sept. 16th, 1909. ALDO CASTELLANI.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

The University.

AT a recent meeting of the Council the following resolution was unanimously passed:—

The Council desires to express its profound regret at the untimely death of Professor Foxwell, and to convey to Mrs. Foxwell and the members of her family its deep sympathy with them in their bereavement. It wishes to place on record its high appreciation of Professor Foxwell's services to the University as professor of therapeutics.

—Professor Jordan Lloyd has accepted the invitation of the Council to succeed Professer Bennett May as professor of surgery.—The vacancy caused by Professor A. Robinson's acceptance of the chair of Anatomy at the University of Edinburgh has been filled by the election of Professor Peter Thompson of King's College, London. Professor Thompson was educated at the Owens College, where he became demonstrator of anatomy. He was lecturer in anatomy at Middlesex Hospital, and in 1905 was appointed professor of anatomy at King's College. It is an interesting coincidence that in each of these appointments he succeeded Professor Robinson. Dr. Robinson's services as professor of anatomy and sub-dean of the medical faculty were greatly appreciated both by his colleagues and students, and much regret was expressed at his resignation.—The chair of Zoology, vacant by the death of Professor T. W. Bridge, F.R.S., has been filled by the appointment of Dr. F. W. Gamble, F.R.S. Professor Gamble also received his early training at the Owens College, where he has been assistant director of the zoological department and lecturer and examiner in zoology. He is widely known for his researches in connexion with the colour physiology of animals.—Mr. John Dale, M.B., Ch.B., B.Sc., has been recommended for election to the Walter Myers Travelling Studentship, and the Senate has approved of his holding the studentship at Hamburg. This is the first time this scholarship has been awarded since its foundation in 1901.

Hospital Sunday Fund.

The committee of this Fund is endeavouring to meet the difficulty patients often have in obtaining notes for those hospitals which require them. Out of 17 charities participating in the collections nine have a ticket system. On the committee's suggestion, three institutions, the General, Dental, and Orthopædic Hospitals, have agreed to issue circulars to subscribers, suggesting to the latter that if they were not prepared to undertake the distribution of their own tickets they should fill a form requesting the hospital authorities to hand them over to the City Aid Society. Thus there would be a centre where patients would be most likely to get the tickets they required, and so avoid the weary tramp from one subscriber to another. Negotiations are being carried on with the remaining hospitals which at present find some difficulty in participating in the scheme.

West Bromwich District Hospital.

The annual report, which has just been adopted, shows that the number of patients treated during the year ended June 30th was in the general department 780, and in the eye department 116, an increase of nine and seven respectively over the previous year. The general out-patients numbered 9566, an increase of 1242, and in the separate eye department there were 2751 out-patients, a decrease of 89.

Oct. 11th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

University of Liverpool: Interesting Blue-book.

THE Blue-book just issued from the Board of Education containing reports from the universities and university colleges in Great Britain which participated in the Parliamentary grants during the year 1907–08 contains interesting matter in regard to the University of Liverpool. There were 1004 day students, of whom 294 were women, while there were 595 persons attending the University evening courses, of whom 97 were women. About 78 per cent. of the total number of day students entered from public secondary and private schools, 21 per cent. coming from pupil-teacher centres and primary schools. A students' union is in course of erection on a site adjacent to the University which will provide accommodation for men and women students in different wings. The portion of the union building to be first erected will cost about £10,000. A students' magazine is published fortnightly during the terms. There are three terms of 11 weeks each, but the evening-class terms are of ten weeks' duration. Two halls of residence have been established in connexion with the University under the control of resident warden and separate committees, one for men and the other for women. The financial statement shows the receipt of Government grant, £13,000; city of Liverpool, £10,000; Lancashire county council, £1100; Cheshire county council, £300; Birkenhead council, £500; fees from students, £17,900; interest on investments, £10,450; special donations, £5000. The endowments represent over £300,000 and sites and buildings £350,000.

Drink and Insanity: Cost of Institutions.

Two interesting reports were presented to the city council at its recent meeting, one by the representatives of the council on the Lancashire Inebriates Board, and the other by the representatives of the council on the Lancashire Asylums Board. The reports show that more female inebriates are becoming chargeable to the public funds and lunacy is increasing alarmingly. The amount paid by the Liverpool Watch Committee towards the expenditure of the inebriates board since its inception in 1902 was £15,216, an average of about £2000 a year. The total sum paid to the asylums board for the year 1908–09 in respect of lunatics sent from the parish of Liverpool, the township of Toxteth Park, and such portion of West Derby as is within the city of Liverpool, was a little over £100,000; in addition to which the Liverpool corporation's contribution for establishment charges amounted to £34,543. Out of the total patients under care in the county asylums during 1908, over 24 per cent. have been sent from Liverpool. Great difficulty is now experienced in accommodating the patients in the existing five county asylums and the cry is for more asylums. Since the opening of the reformatory for inebriates at Langho, near Blackburn, in April, 1904, 78 persons have been committed from Liverpool. The average number of convictions against Liverpool inmates at present in Langho is 21. The report states that one woman from Lancaster had been convicted 149 times.

Liverpool and Vaccination.

The anti-vaccination movement in Liverpool does not appear to find much favour with the sensible inhabitants of the city. At a meeting of the select vestry held on Oct. 5th it was reported that for the half year ending December, 1908, 2452 births were registered in the parish of Liverpool, and of these 2044 were successfully vaccinated; one child was returned as insusceptible to vaccination, and 11 children were returned as not having been vaccinated owing to the conscientious objection of their parents. The remainder of the children had either died or been removed from the parish before the period allowed for vaccination had expired or had the operation postponed by medical certificate. None of the children had been reported as having suffered from small-pox.

The Liverpool Crematorium.

The crematorium at Anfield has now been acquired by the corporation of Liverpool, and the municipality is desirous of popularising the institution. For the first nine months of this year there were 37 cremations, as compared with 34 during the whole of the year 1908. The medical officer of health, Dr. E. W. Hope, and the city engineer are at present preparing a report on the subject of cremation, which will, no doubt, take into account the progress of cremation in other towns in this country as well as on the continent. Hopes are now entertained that, under the change effected, the fees, which at present are above the reach of many, will be materially reduced. Dr. Richard Caton, formerly Lord Mayor of Liverpool, has been elected the chairman of the new crematorium subcommittee.

Munificent Gift to Bury.

Mr. Thomas Aitken of Bury has, I hear, given Holcombe Hall and the grounds adjoining to the Bury and District Joint Hospital Board for a hospital for the treatment of phthisis. The gift is valued approximately at £30,000.

Liverpool School of Tropical Medicine.

Mr. Wilfred Parsons, who was selected to take charge of a branch of the school in Grand Canary, sailed for Las Palmas on Oct. 8th.

Oct. 12th.

WALES.

(FROM OUR OWN CORRESPONDENT.)

Phthisis in Cardiganshire.

THE high death-rate from phthisis prevailing in Cardiganshire has frequently been commented upon. In the last published annual report of the Registrar-General, that for 1907, it is stated that in the five years ending 1907, of the 14 counties in England and Wales suffering the highest fatality from phthisis not fewer than seven were Welsh, and among these, Cardiganshire experienced a death-rate nearly double the average for England and Wales. The actual rates were 1·17 per 1000 in the whole country and 2·30 per 1000 in Cardiganshire. In the summary of the reports of the medical officers of health, which has just been presented to the Cardigan county council by Mr. Walter Ll. Davies, it is stated that in 1908 the phthisis death-rate in the whole county was 2·03 per 1000. Contrary to what is found elsewhere, the death-rate in the urban districts (1·7) was lower than that in the rural (2·1). In Newquay urban and Lampeter rural districts the rate was 0·8 per 1000. In no other district was it below 1 per 1000. In five districts it was over 2 per 1000 and in the town of Cardigan it was as high as 3·1 per 1000. This deplorable death-rate from a preventable disease is attributed by some of the medical officers of health to the dietary of the people, by others to the dampness and dilapidated conditions of many of the dwelling-houses, while one considers that the high fatality is influenced by the return home of persons infected elsewhere. The West Wales Sanatorium at Alltymynydd is thought to be doing something in the way of reducing the incidence of the disease, but Mr. Davies considers that the first step to take in fighting the scourge is to adopt a system of compulsory notification, together with adequate arrangements for the free bacteriological examination of sputum. There is ample evidence in the reports of the district medical officers of health that the housing conditions in the county are responsible for a large amount of ill-health among the inhabitants. In Aberayron, for example, there are damp houses built up against the live earth, without ceilings, without rain-water gutters or damp courses, and insufficiently lighted and ventilated. In three localities in the Aberystwyth rural district the houses are described as being in a dilapidated condition and hardly fit for human habitation. In many of the houses in Tregaron the only fresh-air inlet is said to be the door, and after making a house-to-house inspection the sanitary inspector found that among 720 dwellings there was no bedroom fireplace in 260, while at 230 there was no privy accommodation.

Medical Officers' Fees.

At the last meeting of the Aberystwyth board of guardians (Cardiganshire) on Monday objection was made to the payment of £1 2*s.* 6*d.* to the district medical officer, Mr. G. R. E. Bonsall, for the quarterly visit of nine imbeciles under his charge, on the ground that one of the paupers included in the list was examined by another medical officer (Dr. J. A. Rees), who had failed to satisfy himself that the woman referred to was a lunatic. The clerk explained that there was undoubtedly a distinction between lunatics and imbeciles, and before any of them could be sent to the asylum or workhouse an order must be obtained adjudicating them lunatics under the Act. The second medical officer was called in for the purpose of certifying whether the woman could be removed into the workhouse. It was agreed to pay the bill. Objection was also made to the payment of a fee of £1 1*s.* charged by Dr. A. Bassett Jones for assisting Mr. Bonsall in administering chloroform in the workhouse. During the discussion it was stated that the guardians had decided that all communications between them and Mr. Bonsall, who is also the workhouse medical officer, should be made in writing. The fee was objected to on the ground that the guardians had agreed, after ascertaining the fees allowed in other unions, to allow a fee of 10*s.* 6*d.* only for extra medical attendance. On being allowed to speak, Mr. Bonsall said he would like to know what his position would be, as he did not think any medical men in Aberystwyth, or elsewhere, would give him assistance for less than £1 1*s.* He positively declined to administer chloroform alone in instrumental cases, and it was unreasonable to expect him, when his fee was only 15*s.*, to pay £1 1*s.* from his own pocket for assistance. The guardians decided to allow a fee of 10*s.* 6*d.* subject to the Local Government Board's approval.

Pontypool Water-supply.

At the last meeting of the Pontypool urban district council the medical officer of health (Mr. S. B. Mason) reported that owing to the large number of cases of diarrhœa and enteritis he had had a sample of the water examined and with not very satisfactory results. Two years ago a serious epidemic of typhoid fever in Pontypool and the adjoining districts was attributed to the water-supply.

Oct. 12th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Edinburgh Post-Graduate Course.

WITH the last week of September the Edinburgh Post-Graduate Course was completed, and the senior members of the medical school who had not shared in the work of the course begin to return from holiday and to take up their official duties. The course was again a gratifying success. It was attended by about 90 doctors of both sexes drawn from many parts of the world, who had received their student training in many different schools. The entrants worked with extraordinary zeal from morning to night and were pleased at the provision supplied by many classes. What seemed to please them especially was the number of things they could do in the small number of weeks embraced in the course.

Opening of the Winter Session at the University of Edinburgh.

The winter session of the medical faculty of the University of Edinburgh began officially on Oct. 1st, and, as was anticipated, the attendance of students was not large. The new professor of anatomy, Professor Arther Robinson, however, delivered his introductory lecture on that day in the McEwan Hall and got a very hearty reception. He spoke of "Anatomy from 1705 till 1909." On Oct. 4th, Professor Alexis Thomson delivered his introductory lecture as professor of systematic surgery. This address was also delivered in the McEwan Hall, and the new professor was accorded a hearty welcome. He dealt with the history of surgery.

Changes in the Edinburgh Extramural School of Medicine.

The main changes in the extramural school of medicine have been in the department of surgery. Mr. James Hodsdon, F.R.C.S. Edin., has resigned the lectureship in systematic surgery at Surgeons' Hall and has been succeeded by Mr. Henry Wade, F.R.C.S. Edin.; Mr. A. Miles, F.R.C.S. Edin., has resigned his lectureship at the New School and has been succeeded by Mr. J. W. Struthers, F.R.C.S. Edin. It is a fact worthy of note that at the present time not a single ordinary full surgeon to the Royal Infirmary is lecturing on systematic surgery; all the lecturers are assistant surgeons either at the Royal Infirmary or at Leith Hospital, and are consequently classed as juniors. This seems to be an unprecedented state of affairs.

The Medical Staff of the Eastern Hospital, Dundee.

The question of the medical staffing of the East Poorhouse Hospital was discussed at a recent meeting of the Dundee parish council. Various proposals were brought forward, but eventually it was unanimously decided that the matter should be referred back to the poorhouse committee. A letter was read from Dr. Eric A. Thomson tendering his resignation of the post of resident medical officer at the East Poorhouse Hospital.

Dundee Town Council and the Treatment of Phthisis.

The Dundee town council on Oct. 8th had the question of phthisis again under discussion. A subcommittee of the public health committee recommended compulsory notification, isolation of advanced cases, and negotiation with the sanatorium authorities for the acquisition of 20 beds in the institution. In support of these proposals it was pointed out that voluntary notification and the dispensary had been failures. The former had failed because of the inadequacy of the means available for securing complete and perfect notification, and the dispensary had failed because it was altogether

inadequate for the treatment of cases which they knew to exist. Compulsory notification, so far as Dundee was concerned, would cost £50 per annum at the most. In opposition to the proposals it was argued that compulsory notification would mean labelling as consumptives 2000 people, and would practically throw these people out of work. The committee's proposals were rejected by 15 votes to 9. It was then moved as an amendment that the recommendations be adopted, except the last, that referring to the 20 beds in the sanatorium. This was defeated by 13 votes to 10. It was then moved that compulsory notification be adopted and that consideration of the other proposals of the subcommittee be dropped, but this was defeated by 13 votes to 10. A proposal that provision of a simple nature be made at King's Cross Hospital for advanced cases was carried by 19 votes to 5, and the meeting, which had lasted for four and a half hours, then terminated.

New Professors.

A meeting of the Senatus of the University of Aberdeen was held at Marischal College on Oct. 5th, Professor W. Stephenson presiding. Dr. John Marnoch presented his commission by the Crown in his favour as professor of surgery in room of Professor A. Ogston. A cordial welcome was extended to the professor by the chairman. Professor Marnoch afterwards signed the roll and took his seat as a member of the Senatus. On the following day the winter session of the University of St. Andrews was opened, when Dr. J. C. Irvine was installed to the chair of chemistry in the University in room of Professor Purdie. Principal Sir James Donaldson administered the oath, and the new professor received the right hand of fellowship from his brother professors.

Medical Inspection of School Children: The Aberdeenshire Scheme.

The adjourned conference between the members of the secondary education committee and representatives of the school boards of the county of Aberdeenshire, called to consider the scheme prepared by the county committee for the medical inspection of school children was held in Aberdeen on Oct. 9th. Sir Arthur Grant of Monymusk moved:—

That the secondary committee be most respectfully asked to take back the present scheme, to reconsider the matter both from the pecuniary and other points of view, and to bring forward an amended scheme or another scheme.

The motion was unanimously agreed to and the meeting terminated.

Oct. 12th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Prevention of Cruelty to Children: Infantile Hygiene in Ireland.

READERS who are specially interested in the all-important subject of the treatment of children and who have listened with attention to the cascade of jeremiads on the subjects of "race suicide" and "physical deterioration," have taken special notice of an address delivered a few days ago to the Clonmel branch of the Society for the Prevention of Cruelty to Children by Mrs. Schooling, a member of the central executive of the organisation. As the speaker lives and works in England she was able to speak with authority, and her hearers had some substantial reason for gratification when she told them that the parents of Irish children treated children more affectionately than did the English. In none of the cases which had been investigated in the district during the past year had anything worse than neglect been brought to light, and after a prolonged and varied experience she did not think that she had ever had such a clean list in England. In Ireland they did not find the continuous and systematic brutality of treatment of children which was so frequently and so painfully revealed on the other side of the Channel and on the continent. The Irish might be hot-tempered (which was not a bad fault), and they might have other faults, but they were not brutal to little children. She had seen in Dublin, Cork, Bandon, and other places, children who, though they might be dirty and ill-clad, were still healthy and strong looking; and one would never see amongst them little wizened faces—the little old men and women children—one saw in English cities. Whilst we were very much pleased to receive this tribute of important expert testimony from a visitor coming from English districts, and with long experience therein, we fear that the contrast of the relationship between parents and children on the two sides of the Irish Channel holds good far more in the country than in the city. The children in our cities do not display the racial vigour of which Mrs. Schooling has said such complimentary things.

The Temperance Movement in Ireland.

The Father Mathew Memorial Hall was opened in 1891 by Dr. Walsh, the Catholic Archbishop of Dublin, who had laid the foundation-stone of the building in 1890, the centenary year of the Irish Apostle of Temperance. The gratifying history has since been that of a continuous increase of the roll of membership. An extension wing of the hall was opened early this month, and the vitality of the temperance movement is also testified to by its patronage in the highest places, as well as by the construction of a horse-drawn caravan which conveys pure and pasteurised milk around the roads and avenues of Phœnix Park. The "Temperance Drink Caravan" is another fruit of Lady Aberdeen's interest in the material prosperity and physical comfort of the Irish people, and to hear a country cattle-driver come to town for the day, bawling out at the top of his voice, "Will you, plaize, hand me out a glassful o' that *paralysed* milk as quick as ye can, for I'm very droughthy," shows the widespread good that is being done.

Royal College of Surgeons in Ireland.

Dr. A. Campbell Geddes, assistant professor of anatomy, Royal College of Surgeons in Ireland, has been elected professor of anatomy in room of the late Professor A. Fraser. Professor Geddes was formerly assistant to the late Professor D. J. Cunningham in the University of Edinburgh.

"Christian Science" in Ireland.

The estimate of "Christian Science" which has been arrived at by the Irish people has been formulated in the *Freeman's Journal*. A fact which can hardly fail to interest all readers of THE LANCET is that the widely read Irish newspaper was originally founded by a Dublin apothecary, and a well-known feature of its policy remains, its sympathetic attitude towards the medical profession. The Research Defence Society and its able exponent, Mr. Stephen Paget, have rarely been exhibited in a better setting than in the article referred to, which bears the title of "Unchristian Folly." The text was furnished by the appearance of Mr. Paget's recent "work exposing the methods of the pseudo-science that has annexed the name of Christianity as a covering to its callous obstinacy and folly," and the quotation shows that the writer of the article minces no words. He alludes to persons who are "lacking the sound basis of a training in logic or in the principles of evidence, who because of that lack find in their education their worst enemy. Opened, by what they call their education, to the attraction of intellectual dabblings, anxious to have intellectual sensations, unable to see life as a concrete whole, supremely able to ignore half its facts if only they get a pseudo-intellectual leading towards mystic fancyings, they expose themselves to follies which the uneducated and the well-educated alike reject with loathing. These people, the crudely emotional, the entirely credulous, unbalanced, half-blind, seem to be one of the great unforeseen dangers of modern society." The view here so forcibly enunciated exposes one of the painfully conspicuous results of education at its present point. I regard the publication of this article at this juncture as one of the specially hopeful prognostics of the future of medicine in the new National University.

Belfast Charity Organisation Society.

The Charity Organisation Society in Belfast has for some time been trying to get the various hospitals and other eleemosynary societies in that city to agree to a proposal to collect subscriptions for the various philanthropic bodies by means of a schedule issued by a central agency. The scheme has, notwithstanding great opposition, been vigorously pushed, with the result that of 56 local institutions whose opinion was asked on the matter by the executive committee of the Belfast Charity Organisation Society, 17 promised to support the scheme were it adopted, 22 declined to fall in with it, while 17 have either not

replied or have replied indefinitely. The executive committee consider now that the number of institutions prepared to support the scheme is quite sufficient to warrant a beginning, and they recommend that a central scheme should be proceeded with at once, with a view to issuing the first appeal pamphlet and schedule in the beginning of next year. The Mater Infirmorum Hospital and the Royal Victoria Hospital did not see their way to join in the scheme.

Londonderry Fever Hospital.

At a meeting of the Londonderry board of guardians, held on Oct. 9th, replies were received from the medical officers of the workhouse in reference to complaints made recently by the staff nurse. It was agreed that the telephone to the hospital did not work well, but one of the medical officers pointed out that he had frequently reported the matter to the guardians. As regarded want of assistance, it was explained that when the nurse complained there were only 14 patients in the fever hospital, of whom nine were convalescent. The medical officer thought that two nurses, one for day and one for night duty, and three able-bodied women to do the rough work were sufficient. The lectures given to the probationer nurses were delivered when the staff-nurse was on duty in hospital and did not need the use of her sitting-room. As to the question of personal disinfection the medical attendant claimed to be a better judge of that matter, and he did not think the guardians need be alarmed. It was decided by the board of guardians to order a new telephone, and by 12 to 3 votes a motion was passed marking both letters as satisfactory, that is, the complaint of the nurse and the reply from the medical attendants.

Oct. 12th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Naval Medical History Sheets.

THE Under-Secretary of State for the Navy has directed that every sailor shall be provided with a medical history sheet, on which shall be entered all particulars relative to the man's height, weight, chest measurement, vision, and hearing, and which shall accompany him throughout his progress in the service. The surgeon-majors or hospital medical officers shall enter on it the results of such examinations as they make, as well as references to attacks of illness, hospital treatment, and convalescence. This record will be passed on, enclosed in a sealed envelope, from one medical officer to another by the director of the *service de santé* or by the officer commanding the depôt or ship in question. When a man has been treated for an illness of a confidential nature it shall be denoted only by the number contained in the nomenclature used for that purpose. Wounds or accidents which may entitle a man to a pension are to be very precisely described in this record.

Experimental Transmission of Exanthematic Typhus by the Agency of Lice.

At a recent meeting of the Academy of Sciences M. Charles Nicolle, M. Comte, and M. Conseil said that some experimental observations on which they had been engaged seemed to show that the pediculus corporis was the principal agent in the transmission of the pathogenic virus of exanthematic typhus. Pediculi corporis collected from the human body and kept without food for eight hours were placed on a monkey suffering from this disease; they were then transferred to a healthy animal of the same species which eventually became infected. These observers therefore believed that for the prevention of exanthematic typhus it would be desirable to get rid of the parasites which infested alike the body, clothing, and bedding.

The Prevention of Cholera.

The Minister of Marine has sent to all the ports and to the officers in command of squadrons a telegram stating that in the event of cholera being notified in any port or squadron he is to be informed of the fact by telegram. During the recent epidemics in St. Petersburg some use was made of a specific serum discovered at the Pasteur Institute in Paris and the Minister of Marine has directed that it shall be employed in the navy. The quantity in the possession of the institute being very small, it has been arranged that when the existence of cholera is telegraphed to the Minister a representative of the institute shall proceed to the scene of the outbreak for the purpose of conducting the serum treatment.

The Third Congress of Medical Practitioners.

The Third Congress of Medical Practitioners will be held in Paris at Easter in 1910, and some of the subjects to be brought forward at the meeting will include the collective results of replies to specific inquiries. The organisers of the congress appeal to the courtesy and professional fellow-feeling of the secretaries of medical associations in the hope that they will assist these investigations by either personally replying to the lists of questions which will be sent to them or by giving the names of members who may be willing to do so. In consequence of the information thus supplied the speakers who will introduce the subjects will not confine their remarks to their personal opinions, but will in addition give prominence to the ideas communicated to them by their correspondents, and the interest which these addresses will possess for the medical profession will be greatly increased. The subjects of the official programme will include the illegal practice of medicine, medical aid associations, hospital treatment of the poorer classes, hospital administration, increase of medical fees, and the application of the statutes relative to public health.

Prize Essays on the Punishments of Children.

The Société d'Hygiène de l'Enfance is offering prizes for essays on the Punishments of Children. Essays will be received up to Dec. 31st, 1909. They must not have been already published and must be written in French, German, English, Italian, or Spanish. They will not bear the author's name, but will have at the top a motto which will be repeated on a sealed envelope containing the author's name and address. Authors disclosing their identity will be excluded from the competition. The essays will not be returned even though they do not gain a prize; they become the property of the society and may not be published by their authors. The society reserves the right of extracting from the best of them the materials for a pamphlet. The prizes, which will be awarded at the annual public meeting of the society in 1910, will consist of gold, silver-gilt, silver, and bronze medals. The essays should be sent before Dec. 31st, 1909, to the President of the Société d'Hygiène de l'Enfance, 10, rue Saint Antoine, Paris.

Oct. 12th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Remarkable Case of a Morbid Craving for Glycerine.

A CURIOUS case of what might be called the glycerine habit is described in the *Deutsche Medizinische Wochenschrift* by Dr. Schmey of Beuthen, in Silesia. Instances of acute poisoning by glycerine have been described by a few observers. Professor Nothnagel has recorded one in which the symptoms included severe colic and syncope. Professor Lewin has remarked that the symptoms were sometimes very like those of cholera nostras together with a state of nervous excitement similar to that of alcoholic intoxication. The case recorded by Dr. Schmey is the first one of habitual consumption of glycerine amounting to a morbid habit that has been described in medical literature. The patient was a young man who, according to the statement of his mother, had contracted the habit of taking glycerine internally in great quantities. He had attended a college in a neighbouring town, but as his obsession had become known to his mother she took him home and consulted Dr. Schmey. The patient did not show any peculiar symptoms; he was rather pale, the liver was somewhat enlarged, the urine did not contain either albumin or sugar, the bowels were regular, and his appetite was tolerably good since his return home. There were slight nervous symptoms, including dermographia and an increase of reflex irritability. He only complained of general debility and weakness. He admitted that he had been in the habit of taking glycerine for the previous three months, having heard that it was a useful remedy for nervous pains. He had at first taken 100 grammes per day, but he had gradually increased the dose to one kilogramme per day.

After these great doses he had afterwards felt a certain sleepiness, so that he used to go to bed. Dr. Schmey saw the patient on only one occasion, after which all offers of attendance or advice were refused; the mother, however, told Dr. Schmey that her son, who formerly had been good-tempered, had become impatient and irascible and that he would even steal money from his mother and sister to buy glycerine. The mother did not follow the advice of the medical man to have her son sent to an institution for medical treatment. Dr. Schmey remarks that the glycerine seemed to have produced no other ill effect than a slight enlargement of the liver. It was not easy to understand why the young man took such great quantities of glycerine; obviously it had the effect of producing in him certain pleasurable sensations similar to those of alcoholic intoxication, as mentioned by Professor Lewin.

Illegitimacy in Germany.

Dr. Fischer of Karlsruhe in Baden has drawn attention to the fact that Germany, Austria, and Sweden have a very high proportion of illegitimate children; whilst in Switzerland, England, and the Netherlands only 4 per cent. of the births are illegitimate the corresponding number for Germany was 8·5 per cent., and in some parts of Germany, such as Bavaria and Saxony, it was even 13·4 per cent. He said that illegitimate children were a danger for the community, not because of their illegitimate birth itself but because they were badly fed and were liable to contract and to spread infectious diseases; they were, as a rule, in a worse state of nutrition than legitimate children because they were more seldom suckled. But apart from their physical condition they were on an average inferior in respect of their morality, statistical researches having shown that the proportion of illegitimates among the prisoners in the penitentiaries of Würtemberg was 27 per cent., whilst in Berne it was 14 per cent., and this large proportion was reached notwithstanding the high mortality of the illegitimate. To ascertain the causes of the great number of illegitimate children the condition of the mother was of importance. In Berlin it was stated that the number of unmarried mothers under 20 years of age was nearly double that of married mothers, being 2000 for the unmarried and 1116 for the married. In the Grand Duchy of Hesse of 35,563 married mothers only 1 per cent. were under 20 years of age, but of 2756 unmarried mothers 21·8 per cent. were under 20 years of age. It has been alleged that for the improvement of the race it was desirable that women should become mothers while comparatively young, but this was only true to a certain extent, the limit being 20 years; women under that age produced, as a rule, weaker children than older women did. Dr. Fischer concludes from the above facts that in the majority of cases the young women become mothers against their will, sometimes perhaps through frivolity, but in a great many cases certainly through imprudence. It must, according to him, be a matter for careful consideration whether a remedy for this lamentable state of affairs was to be sought in legislative measures or in instruction in sexual matters as proposed by many medical men, hygienists, teachers, and philanthropists.

Oct. 11th.

SWITZERLAND.

(FROM OUR OWN CORRESPONDENT.)

Hygiene at Zürich Municipal Schools.

THE annual report of the municipal schools of Zürich for 1908 has just been published. The number of school children was 23,385. Of 3652 who were examined for the new school year 288 (or 7·8 per cent.) had to be refused owing to bodily (228) or mental (60) deficiencies. Owing to infectious diseases in their homes, 1462 children were temporarily forbidden to attend school (mostly home cases of scarlet fever and diphtheria). The ophthalmological examination of these school children showed 22·1 per cent. to have anomalies of vision, half of which (11·4 per cent.) referred to astigmatism. This year 2627 scholars of the sixth class (aged 11 to 12) were also examined. 24·7 per cent. had visual defects (astigmatism 8·7 per cent., myopia, 5·7 per cent.). The aural examination refers to 3606 children. 300 of these (8·3 per cent.) were affected. 200 cases of catarrh of the Eustachian tube were diagnosed, the majority of which (160) had adenoids. The dental surgeon, who entered on this new sphere of action on May 1st, 1908, had an immense amount of work in the investigation of the teeth of 3652 new scholars. Caries is very prevalent in Zürich, and only 45 (1·5 per cent.) had absolutely healthy teeth—a truly appalling fact. With due assistance he treated over 3000 patients. 27 children were given a course of treatment for stammering. The schoolmasters and parents must continue the good work begun if definite good results are to be obtained. Thousands of children joined in the sports classes arranged officially, and 1208 passed successful examinations after taking a swimming course. An investigation showed that 63 per cent. of all the scholars of the sixth class could swim. I may mention that all classes of society send their children to these municipal schools, a small minority (perhaps 200 only) attend private schools, and some 400 so-called Church schools.

Accidental Deaths in Switzerland.

The Federal Statistical Department in Berne publishes statistics for the quinquennium 1901 to 1905, of which an extract is of general medical interest. The total number of fatal accidents has increased during the last 20 years from 7949 to 10,368, or from 266 to 343·5 per 10,000 inhabitants. Falls occasioned 2608 deaths (75 being due to mountain accidents), carriage accidents 508 (motor-cars 10, bicycles 28), railway and tram accidents 410 (trams 65), bites 8, gunshot wounds 141, poisoning with berries 28, with mushrooms 19, with acids 24, with alkalies 21, with arsenic 5, with phosphorus 8, acute alcohol poisoning 34, meat poisoning 39, medicinal poisoning 29, death under anæsthetics 37, from insect stings 33, from snake-bites 2, after infection from slight wounds 232, drowning in lakes 1187, in ponds, &c., 501, poisoning by carbonic oxide 90, other gases 14, suffocation in bed 121, and from other causes 156, deaths from avalanches 56, from frost-bite 177, from burns 976, from sunstroke 60, from lightning 46, from electric currents 92, from hunger 5, and from undetermined cases 63.

Zürich, Oct. 6th.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

Award of the De Vincenzis Prize in Ophthalmology.

AT the "Congresso Internazionale di Oftalmologia," held at Naples in April last, it was announced that a special prize had been instituted in that department of medicine to be called the "Premio di Oftalmologia De Vincenzis," in memory of the life and work of that great pioneer. The prize, consisting of seven gold medals, is open to foreign and to national competitors, three of the medals to be awarded to the former and four to the latter. The award of the national medals is entrusted to specialists holding chairs in the several seats of learning throughout the kingdom, and one has just been conferred on Dr. Gaetano Sampieri of the Army Medical Department for his essay bearing the title "Dei Linfatici delle Palpebre e loro Vie di Reflusso" ("The Lymphatics of the Palpebræ and their Channels of Reflux").

Epidemic of Small-pox on the Neapolitan Riviera.

While a friendly controversy is now being waged between the medical schools of Paris and Turin as to whether France or Italy had the honour of being the first to practise the Jennerian prophylactic; and while there has just been unveiled at Frascati a statue of Cardinal Massaia, the great Capuchin missionary, to commemorate (*inter alia*) his successful introduction of vaccination among the savage tribes of Western Abyssinia—an innovation which marvellously facilitated his Christianising efforts prolonged over 35 years—we are having fresh proof of the persistence of small-pox in various provinces of the Italian kingdom, the outbreak at Parma having, at a short interval, been followed by a still more formidable visitation at Salerno. For two months, it seems, this much-frequented sun-trap on the Neapolitan Riviera has witnessed an epidemic of variola, of which 60 cases have been reported and 20 with fatal results. As recently as Sept. 27th the municipality proceeded to energetic prophylactic measures and the official vaccinators were on active duty accordingly. But the people forcibly resisted. The incident demonstrates the difficulties with which public hygiene has to struggle in Italy, and must be attributed, in the last resort, to the ignorance in which the

people are still immersed in spite of State education. The Home Office, the sanitary inspector whom it deputed to the seat of infection, the sanitary officer acting at his instance, the practitioners of the province, backed by the municipal authorities—all alike are "suspect" in the eyes of the populace, who, under that suspicion, deny themselves in presence of a loathsome and often fatal disease the benefit of a safeguard recognised as of sovereign efficacy in all civilised nations—even, *teste Massaia*, in benighted Ethiopia. But the interests at stake are too vital to admit of this defiance of hygienic law, and the approval, at headquarters, of the measures now taken, seconded by Government subsidies and the erection of isolation huts, above all, the preponderating good sense of the better educated, may be trusted to prevail. It would indeed be more than regrettable if, at the opening of the tourist season, the infatuation of the *facæ populi* were allowed to deter the travelling world from one of its favourite winter resorts.

A Medical Martyr.

The sixth meeting of the "Società Italiana di Patologia," held on Sept. 27th, attracted a numerous body of the profession to the Aula Magna of the University of Modena, under the presidency of the Senator Dr. Pio Foà of Turin. In the course of the day a "targa" (memorial shield) with the portrait of Profes r Tito Carboni of Tortona, a pupil of Dr. Foà, was unveiled in the presence of the congressisti. A felicitously worded inscription from the pen of Dr. Mariano Patrizi, professor of physiology in the Modenese School, set forth the many merits of the deceased, who, a brilliant student at Turin, had achieved an honoured name in pathological research when, at the age of 42 years, he succumbed to pyæmia contracted while conducting an experiment in the laboratory. Touching attestations of Carboni's exemplary life and work were delivered by Dr. Arnaldo Maggiora, professor of hygiene at Modena, and by his old master, Professor Foà, after which the congress proceeded to business—the first paper on the agenda being Professor Bonomo's on Tuberculosis.

The Recent National Congress of Midwives.

The Seventh National Congress of Midwives was held at Bologna in September, and in response to an invitation sent through Sir William Sinclair by the president of the Congress, Professor Pazzi, the English Central Midwives Board asked Miss Rosalind Paget to attend as its delegate. Miss Fynes-Clinton represented the Incorporated Midwives' Institute. A most cordial reception was accorded both by the medical faculty and the midwives to the English representatives, who were invited to attend an operation at the "Clinica" by Professor Calderini, the well-known obstetrician. Opportunity was also afforded them of seeing the routine work of the Maternity Hospital. Italian midwives undergo a two years' course of training, and hold a position of considerable importance, and the Congress has no doubt proved an interesting object-lesson to the English visitors in the organisation and control of their profession.

The Congress of Internal Medicine at Milan.

The outstanding features of this meeting were three in number: (1) the Senator Mangiagalli's paper on the "Fattore Meccanico ed il Fattore Biologico nella Patologia della Gravidanza" (The Pathology of Pregnancy: its Mechanical and its Biological Factor); (2) "The Baccelli Treatment of Tetanus"; and (3) the foundation of the National League Against Malaria. The first of these evoked special interest from Dr. Mangiagalli's well-known mastery of the whole field of obstetrics, wherein he has shown himself a worthy successor of Edoardo Porro. But the rigidly scientific tenor of the exposition, while impressing the audience profoundly, was so technical and so detailed that even experts, clinical and consultant, were fain to reserve judgment on it till they could peruse it in published form—an opportunity which they will soon enjoy.

The Baccelli Treatment of Tetanus.

This again was a most interesting paper which it will be enough for the present to summarise. Baccelli's experience of the action of phenic acid, hypodermically introduced, in the "neuromyalgiæ" and the "neuritides" previously found intractable induced him to exhibit it in tetanus. The anti-tetanic serums of Behring and Kitasato, of Tizzoni and of many others, proved much less efficacious than the treatment by phenic acid, the mortality according to the two former averaging between 40 and 50 per cent., while Tizzoni's statistics (taken from his last publication) register not less than 30 per cent. The phenic acid treatment, on the other hand, proved much more successful. Indeed, in the latest statistics of Professor Vittorio Ascoli of Rome 25 recent cases subjected to the treatment register but one terminating fatally. Dr. Baccelli then gave a clinical account of an octogenarian (male) treated by him for tetanus in its severest form. Injected in repeated high doses the phenic acid wrought a speedy and permanent cure. Dr. Victor Babes, professor of pathology at Bucharest, has published a series of experiments carried out in his laboratory on dogs, rabbits, and pigeons in which the induced tetanus was successfully treated by the same method, while Kitasato, on the lines of Baccelli, has recently made researches which demonstrate that a phenic acid solution in the proportion of 1·5 per cent. sufficed in half an hour to neutralise the toxic force of the culture in glass of the bacillus of tetanus. Quite lately Baccelli has received from correspondents in clinical schools, non-Italian as well as Italian, confirmation of the efficacy of his method, showing, *inter alia*, that the phenic acid develops a distinct inhibitory action on the "reflector" power of the tetanic infection on the spinal cord; that it is not only "anti-thermic" but antitoxic; and that the marvellous tolerance shown by the severest cases under doses of one, two, and even more grammes *per diem* entitles us to formulate the axiom that "tolerance of an heroic remedy stands in direct proportion to its clinical indication." This axiom, according to Baccelli, holds good for the sublimate he was the first to inject into the veins for infections of various kinds, particularly for those called by Professor Bozzolo of Turin masked infections, corresponding, in part, to the "septicæmiæ crypto-geneticæ" of Leube. The importance of the results claimed by Baccelli for his phenic acid treatment may be estimated from the fact that in the North American Civil War (1861–64) the mortality from tetanus was 93 per cent. and in the Franco-German war 90 per cent.

The National League against Malaria.

The originator of this movement, too long deferred, is Dr. Pietro Castellino, professor of medical pathology in the Neapolitan school, who won his spurs in the campaign against malaria in the Abruzzi, whose knowledge of the malady is in some respects unique, who has conducted at his own expense a "giornale anti-malarico" already counting three years of life, and who has offered a prize of 3000 fr. (£120) for the best manual for practical and popular use on the prevention and cure of malaria. Professor Castellino, who, I may mention, sits as representative of a provincial constituency in the Chamber of Deputies, has very decided views as to the etiology and prevention of the disease, holding that the true cause of it resides in the soil, which in turn infects the air, which in turn supplies the mosquito with its pabulum. "Bonifica tellurica" must go hand in hand with "bonifica dell'uomo" (rehabilitation of the human subject) to achieve prevention—nature resenting neglected husbandry and neglected hygiene, and penalising the individual and society accordingly. Prophylaxis by systematic exhibition of quinine he does not believe in. Even if the drug could be uniformly, steadily, and intelligently consumed as an adjunct to food the prophylactic result would be *nil*. This, he maintains, has been proved by statistics, but he allows, on the other hand, that when the disease is present quinine is a certain cure, the vastly extended exhibition of it in regions in which it was previously unknown having reduced the yearly mortality from the disease by more than two-thirds. Admitting that the mosquito is a carrier and propagator of malaria, he quite acknowledges the efficacy of wire gauze as a protection from the insect—a resource which must be put in practice pending the thorough arrest of the infective poison at its source in the "bonifica del suolo" and the "bonifica umana." Quinine, too, must be supplied provisionally in sufficient quantity and in unadulterated quality in the malaria-haunted districts, and to this duty the Government as well as the profession are now thoroughly alive. Inspired by these principles the National League will, he believes, and before the century is much older, solve the enigma of malaria, enjoying, as it will do, the coöperation of the profession with the administration, and of both with the properly instructed individual. The Senator Camillo Golgi, at Wednesday's sitting, read a paper, "Sulla Questione della Malaria," in which he insisted, with Castellino, in the primary necessity of agrarian and hydraulic reform; and

then on the "bonifica umana" as *pari passu* indispensable, while (again in accord with Castellino) he scouted the "chininizzazione" (quininisation) of the human subject as worse than useless prophylactically and likely to impair the efficacy of the drug when opportunely taken. The "profilassi meccanica" (wire gauze) he recommended as a provisional protection from the mosquito, which he recognised as a carrier merely of the infection. Baccelli followed in the same sense, after which a "statuto" was drawn up and approved, succeeded by the nomination of a "Consiglio Direttivo Centrale" which will guide the operations of the league from its headquarters in Rome.

Oct. 8th

NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

A Standard Medical Curriculum.

IN order further to secure greater uniformity in the courses of medical education in the schools of this country the annual conference of the Council on Medical Education, at its meeting in April, recommended a standard medical curriculum, which has recently been published. In the absence of a standard as a guide there is the likelihood that some colleges would attach too much importance to some subjects and too little to others, or might go to the extreme of overloading the curriculum with unimportant details. The aim and purpose of the council were to arrange a medical curriculum which would not be so overcrowded as to prevent the best training and equipment for practitioners of medicine in all of its branches. In the preparation of the curriculum the council selected a committee of 100 men from the leading medical teachers of the United States and Canada to make an exhaustive examination of the entire problem. The curriculum was constructed on the following lines: (1) The entire medical course was to cover four years of at least 30 weeks each, exclusive of holidays, consisting of at least 30 hours per week of actual work; (2) a four years' high school education, and in addition at least one year of college work devoted to courses in physics, chemistry, biology, and modern languages was to be required for admission; and (3) the total requirement for the study of all branches of the medical curriculum for the four years was to be at least 3600 hours.

Ambulance Preparations at the Hudson-Fulton Celebration.

The Hudson-Fulton Celebration which has just closed was interesting in the elaborate preparation made by the authorities to prevent accidents and to provide facilities for the immediate care and treatment of injuries to persons. A "Committee on Public Health and Convenience" was created, with the State Commissioner of Public Health as its chairman. This committee established "medical emergency stations"—viz., field hospitals, of which there were 23, open day and night, and first aid to the injured stations located at intervals of three or four blocks. These hospitals and stations were placed along the entire route of the processions and along the shore of the Hudson river opposite the fleets of battle-ships. The hospitals and stations were fully furnished, equipped, and provided with surgeons and trained nurses by the New York county branch of the Red Cross Society and by the National Volunteer Emergency Service. To supplement the regular city ambulance service a larger number of extra ambulances were provided which were utilised to convey serious cases to the city hospitals. Fast ambulance launches patrolled the river in the vicinity of the warships and accompanied the naval parade. Ambulance stations were located at several piers to facilitate the transfer of patients from the launches to the hospitals. The entire service was conducted without expense to the public. The result of these elaborate preparations was most gratifying. Of the several millions of people who participated in this carnival of a week's duration not one suffered a fatal injury.

Course in Public Health.

The University of Pennsylvania has established its proposed course of lectures on public health. It is intended to qualify students for office, and includes courses on sanitary engineering, public water-supplies, theory of hydraulics, sanitary engineering of buildings, inspection of meat, milk, and other animal products, practical methods used in sanitary work, personal hygiene, general hygiene, sanitary legislation, and the examination of social and vital statistics in the United States. The course of instruction covers a period of one academic year. All those who qualify in the final examinations will receive a diploma and will be designated as "certified sanitarians." Only persons holding the degree of doctor in medicine are eligible to the full course and entitled to the diploma.

Leprosy in the United States.

The official statistics of the Commission of the United States and Marine Hospital Service gave the number of lepers in 1892 as 278, and this is about the present number. Of those of foreign birth the Norwegians were the largest number, being 22; the Chinese are next in the list, 20; Germans and Bohemians are 12 each; and Icelanders are 11. The forms of leprosy are as follows: anæsthetic, 107; tuberculous, 88; and mixed, 83. Of the total number but 72 are segregated. The 11 Icelanders are settled in the State of North Dakota and all contracted the disease in Iceland. The large number of Norwegian lepers may be due to the fact that 170 are reported to have emigrated from Norway to the United States. The presence of so many lepers is attracting public attention, and there is a growing belief that they should be colonised.

Antituberculosis Organisations Among the Negroes.

The mortality among the negro population from tuberculosis has always been excessive. The public interest in the prevention of the disease has awakened an interest in this class, and plans for organising "Coloured Tuberculosis Leagues" have been perfected by the United States Public Health Service. The plan is to organise a branch "league" in every negro church in the country, and any coloured person may become a member of such body by payment of annual dues. The fund from the annual dues is to be used for the care and treatment of society members of that league who may be suffering from tuberculosis, and for dissemination of information by publication and lectures and the establishment of dispensaries and sanatoriums. A State league has been established in Georgia and many branch leagues have been formed.

Ether Day Celebration.

The trustees of the Massachusetts General Hospital have issued invitations to attend the exercises of the Sixty-third Anniversary of "Ether Day," on Oct. 16th. These exercises consist of demonstrations and operations in the hospital in the forenoon and exercises proper in the afternoon, when diplomas will be presented and an address will be delivered by President Eliot of Harvard College.

Sept. 30th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Plague.

THE plague returns for the week ending Sept. 4th show 1952 deaths, compared with 1811 in the week preceding. The Bombay Presidency reported 703, Madras 155, Bengal 38, United Provinces 455, the Punjab 39, Burma 60, the Central Provinces 243, Mysore State 149, Central India 85, and Rajputana 25.

The Health of Bombay.

The mortality in Bombay during the past week reveals no special features of interest in the health of the city. The total deaths were rather more numerous than in the preceding week, amounting to 602 as against 593, while the number for the corresponding week of last year was 572 and the mean for the past five years 681. Plague has very slightly subsided and accounted for only 27 deaths, the number in the previous week being 31 and in the corresponding week last year 22, while the five-yearly average is 34. Fortunately, cholera also shows signs of abating, the result, no doubt, of the fewer importations which took place. Only two cases came down from Nasik, and the total mortality of the week was 27, as against 43 the previous week. The death-rate is 32·01 per 1000 of the population and the corrected death-rate 31·27. The figure at this time of year previous to the outbreak of plague was 31·26.

The Manufacture of Quinine.

The report of the Government cinchona plantation and factory in Bengal for the year ending in March last shows

that 938,800 pounds of bark were put through the factory. When the extensions of the factory were completed two or three years ago it was estimated that it would be possible to manufacture 30,000 pounds of quinine yearly. Last year 36,919 pounds of quinine and 7281 pounds of cinchona febrifuge were manufactured. The output of quinine has practically trebled since 1904. A quite satisfactory start was made with the manufacture of quinine in tablet form, and the factory could turn out any quantity of quinine tablets, but to do so more machinery would be required. The work of building up a reserve of quinine was continued during the year, over 18,000 pounds of quinine sulphate and nearly 4000 pounds of cinchona febrifuge being added to the stock. At the lowest estimate this was worth about one and a half lakhs of rupees, so that though the actual receipts fell short of the expenditure by some Rs.31,000 the factory had quite a substantial balance to the good in the shape of the quinine reserve. An increase from 4000 to 5000 pounds took place in the amount of quinine utilised for pice packets, and a further large increase under this head is expected during the coming year.

Cholera in Calcutta.

In the annual report of the health officer of Calcutta attention is again directed to the high rate of mortality among Hindus; they form about 65 per cent. of the total population, but contribute 82 per cent. of deaths. They suffer particularly from cholera, and there can be no doubt that the careless use of polluted water results in serious loss of life. In spite of the fact that the general water-supply of Calcutta has been improved and increased, the death-rate from cholera has been higher in the past ten years than in the previous decade. Non-Hindus, who use pipe-water freely, suffer comparatively little from the disease; and the conclusion drawn is that the sources of infection are in the river, the canal, and Tolly's Nullah. The Hindus, especially at certain festivals, drink freely from these sources, and hence they are the greatest sufferers. The health officer, in noticing the fact that cholera never leaves Calcutta entirely, observes:—

> I do not believe that Calcutta infects itself, so to speak, or that the recurring outbreaks are always indigenous in origin. Numerous deaths occur amongst the thousands who are continually streaming into the city, and many local outbreaks, if not many of the general epidemics, are due to infection brought in. We may, I think, fairly assume that as the disease wanders, so to speak, over Bengal, infecting place after place, the several attacks are due to the import of infected individuals, with the concomitant pollution of water-supplies. The river Hooghly, like the Ganges, probably receives from time to time the germs of this disease, whence they come we know not, and with such infection it produces outbreaks of cholera along its course until it ceases to be dangerous.

The only explanation, therefore, of the continuance of cholera in epidemic form in Calcutta is that the river becomes polluted at irregular intervals. Returns show that after all the great bathing festivals epidemics occur, the Ardhodaya Joge being particularly disastrous. It seems impossible to prevent these outbreaks, for the pilgrims and others who drink the foul water of the Hooghly and Tolly's Nullah, which passes near the Kalighat Temple, cannot be made to understand the risks which they run. Sanitary science is helpless in the face of popular ignorance and superstition; and cholera will take its toll of lives in Calcutta yearly until the people learn to protect themselves against the disease. The health officer deals also with epidemics of small-pox, and his remarks as to the necessity of revaccination are much to the point. It may be noted as an interesting fact, that the whole town of Calcutta is singularly free from malaria, the deaths last year being only 1·2 per 1000. The suburban wards are not so healthy, but even there the mortality is less than 3 per 1000. In rural Bengal malaria is far more deadly, especially in certain districts, which are constantly stricken with fever in the autumn.

The Malaria Conference.

Among officials attending the malaria conference in Simla next month will be Colonel T. E. L. Bate, I.M.S., and Colonel G. F. W. Braide, I.M.S., from the Punjab; Colonel W. G. King, I.M.S., Inspector-General of Civil Hospitals, Burma; and Mr. Cholmeley, Commissioner of the Magwe Division.

The Move of Troops from the Hills.

British troops will this year move down from hill stations at the normal time, unless there is a severe outbreak of malaria in the plains. So far there are no signs of this in the big cantonments.

Sept. 12th.

Obituary.

WILLIAM RIVERS POLLOCK, M.D. CANTAB., F.R.C.P. LOND.,

OBSTETRIC PHYSICIAN TO WESTMINSTER HOSPITAL; SENIOR PHYSICIAN TO QUEEN CHARLOTTE'S HOSPITAL.

BY the death of Dr. William Rivers Pollock the medical profession has sustained the loss of a capable teacher and administrator and a devoted follower of our science, while his admirable personal qualities, which had endeared him to a wide circle of colleagues, friends, and pupils, have made that sense of loss far-reaching as well as personal. Dr. William Rivers Pollock was born in 1859, being the third son of Master George Pollock, formerly Queen's Remembrancer, and grandson, therefore, of the famous Chief Baron Pollock, among whose numerous descendants so many have excelled, especially at the bar, in medicine, and in literature, that they have a most interesting tabular statement to themselves in Professor Karl Pearson's "Treasury of Human Inheritance," published by the Francis Galton Laboratory, in illustration of the influences of heredity.

At Haileybury, of which school he was a member from the autumn of 1873 to the spring of 1878, "Jim" Pollock, as his boy friends always called him, showed little promise of future success in the practice of an intellectual profession. Always industrious, he never found learning easy, but he attained considerable distinction in athletics, for which he was well fitted physically and to the mastery of which he brought to bear some of the methodical persistency which characterised his work in after life. At Haileybury, as later, his high moral character and unobtrusive "goodness," his geniality and unaffected charm of manner, won for him the affectionate esteem of all with whom he was brought into contact.

On leaving Haileybury he entered St. George's Hospital, where his father's cousin, Mr. George Pollock, was at the time senior surgeon. He was an industrious student, and more than at school showed the quality of mind which later secured him his high position in medicine. Having qualified as M.R.C.S. Eng., he duly became house surgeon. He was also a prominent football player, and repeated his athletic prowess at Haileybury, in particular becoming known as one of the best hurdle-racers in the country. On the termination of his appointment at St. George's Hospital he was elected house surgeon and anæsthetist to Addenbrooke's Hospital, Cambridge, entering at the same time as an undergraduate at Trinity College, Cambridge. In 1888 he graduated as M.B. and B.C., finding time to complete his medical course while discharging his hospital duties under such vigilant eyes as those of Sir George Paget and Sir George Humphry, who was especially attached to him, and while at the University he confirmed his successes as a hurdler by winning the inter-University contest in 1884 in the then record time of 16 seconds. He did not represent the University in the athletic field in following years because he sustained a severe and obscure injury leading to extensive and acute phlebitis of the iliac veins which spread to the inferior vena cava and nearly proved fatal. The condition was probably due to the violent muscular exertion of hurdle-racing, and although an early diagnosis, prompt treatment by the medical staff at Addenbrooke's and Mr. George Pollock, and careful nursing restored him to health and vigour, the abdominal and venous trunks were greatly and permanently obstructed, leading to the development of a vast series of superficial veins, and necessitating the wearing of elastic supports over the lower limbs and abdomen.

On leaving Cambridge Pollock took a long sea voyage, in the course of which he met his future wife, who was the daughter of Mr. James Horne Stewart of Bathurst, N.S.W., and completed his restoration to health. He returned to London, and having decided to practise in obstetric medicine took the Membership of the Royal College of Physicians of London in 1890, and was elected in 1891 assistant physician to Queen Charlotte's Hospital. In 1893 he was appointed assistant physician to the Westminster Hospital, and at the time of his sudden death he was senior physician to Queen Charlotte's Hospital and full obstetric physician to the Westminster Hospital. In both capacities he rapidly established a position as one of our leading obstetricians. As a teacher he succeeded because not only had he the necessary learning and gifts of arrangement and

exposition, but he had a pronounced vein of dry and quiet humour. A very tall, serious-looking man of a notably undemonstrative manner, a droll story or an apt allusion gained point by his superficial appearance of melancholy and his aptitude as a mimic. By the various students under his teaching Pollock will be greatly missed, and no less so by his colleagues upon the staffs of the two great charities which he served. As treasurer of the medical school of Westminster Hospital he gave up his time without stint to the perfecting of the working arrangements of the school and to regular attendance at committees, and both at Westminster Hospital and at Queen Charlotte's Hospital he was most earnest in his endeavours to improve the clinical teaching in midwifery. All that he did and said on the subject was informed with practical knowledge, for in addition to the appointments which we have mentioned he was consulting obstetric physician to the Westminster Dispensary and had been physician both to the St. George's, Hanover-square, Dispensary and to the Grosvenor Hospital for Women and Children. He was also examiner in midwifery and diseases of women both at the English Conjoint Board and the University of Cambridge. In 1901 he was elected a Fellow of the Royal College of Physicians of London.

We have said almost enough to show the manner of man that Pollock was, for this brief record indicates the straightforward and simple character of the man and his steady devotion to work, which were the things that combined to bring him professional success and to bring to light that clinical skill which he always appeared to hide; but we add two brief notes from personal friends, one of whom was Pollock's teacher and the other his fellow student, because it is not always that a man is regarded with exactly the same affection and respect by his seniors and his contemporaries.

Mr. J. Warrington Haward writes: "To his numerous friends the death of Rivers Pollock is an irreparable loss. It not only takes from us a physician whose sympathetic insight into character and whose acute perception of symptoms made him an exceptionally valuable consultant, but it also robs the medical profession of one who maintained its highest traditions and who set an example of the most perfect and straightforward uprightness. In private life he was a delightful companion, full of wit and humour, and with a most amusing power of mimicry. He was, moreover, kindly, good-natured, and thoughtful for others to an extent which made him universally beloved. To his intimates his death has brought deeply felt sorrow and regret."

Dr. F. W. Hewitt writes: "Absolutely frank and straightforward in all his dealings with others, Pollock never seemed to find it necessary to adopt that unsympathetic brusqueness which so often characterises the so-called honest man. He was ever considerate for the feelings of others, whether they were rich or poor; ever courteous, ever kind, ever unselfish. Though religious in the best sense of the term, he never paraded his religion. He had a merry wit, a love of the ridiculous, and a keen sense of humour which endeared him to those who knew him best. He rarely, if ever, spoke of himself or of the physical disabilities from which he suffered, though his intimate friends were well aware how greatly the latter handicapped him when in active work. By his death the medical profession has lost more, perhaps, than it realises."

Dr. Hewitt's allusion to the deeply religious character of Rivers Pollock will be appreciated by all who knew him. His tenderness and loveableness, no less than his cheerful sense of humour, had their origin in his happy faith. This it was that enabled him, though suffering from severe physical disability, to carry on, and carry on cheerfully, his busy professional life and to project himself with the fullest sympathy into the lives of his patients.

He has left behind him a widow and two children, a son at Cambridge and a daughter a few years younger. With them we sympathise in their great bereavement.

GEORGE JOSEPH COOPER, M.R.C.S. ENG., L.S.A., M.P.

WE have to record the sudden death of one of the few medical practitioners sitting in the present Parliament, a man who was not only an enthusiastic politician but at the same time a hard-working member of his profession. Mr. George Joseph Cooper, who was born in 1844, was educated at Leeds Grammar School and subsequently at the medical schools of Leeds, Manchester, and University College Hospital. He qualified M.R.C.S. Eng. in 1867 and took his L.S.A. four years later. He gained his early clinical experience as resident medical officer at the Poplar Hospital for Accidents, and subsequently became house surgeon at the Bristol General Hospital. Returning to London, he settled in practice in Bermondsey, where he has lived ever since. He was not long in entering public life, taking a prominent interest in various questions of social and municipal reform, with the result that he was elected to the London County Council in 1889, serving on the Progressive side for 17 years, during 13 of which he was a member of the public health committee and for six years its chairman. He was on the asylums committee for 13 years and served on 14 other committees, in the business of which he proved himself an indefatigable worker. The scheme which led to the foundation of the Colony for Epileptics at Epsom was the outcome of Mr. Cooper's professional knowledge, and its successful realisation was in great measure due to his administrative ability and powers of persuasion. Perhaps his chief service to the public health was during his chairmanship of the committee charged with its protection, when his personal tour of every common lodging-house in London, and the consequent revelation of the danger from fire and infection to which many of their inmates were exposed was chiefly responsible for the formation of the register of lodging-houses. His special knowledge was also of considerable service to the Council during the small-pox epidemic of 1902, and more recently in dealing with the problem of a pure milk-supply for the metropolis. His municipal services earned him a place on the Commission of the Peace for the County of London. He only severed his connexion with the London County Council when at the last general election he was asked to stand as the Liberal Parliamentary candidate for Bermondsey, where he had become a well-known social reformer and was extremely popular with the working classes, amongst whom his medical practice largely lay. He gained the seat for his party by a very decisive victory, and during the four years that he has since spent at St. Stephen's he has taken a close interest in questions affecting public health and the medical profession. He was among those who made a successful appeal to the Chancellor of the Exchequer to grant a rebate on the tax on petrol used by medical men in their motor-cars, and was one of the speakers when Mr. Lloyd George received a deputation on the subject. In fact, the second last division in which Mr. Cooper voted took place in connexion with the schedule of the Finance Bill dealing generally with rebates on motor spirit duty.

During the present session of Parliament Mr. Cooper introduced an Anæsthetics Bill. It stood on the order paper for second reading at the time of his death. Owing to the motions for its rejection of which notice had been given there was, of course, no chance that it would be further proceeded with this year, but he did not withdraw the Bill. He promoted an early Bill for the provision of a metropolitan ambulance service, which, however, was dropped pending the investigation of the Departmental Committee on that subject. Mr. Cooper was as enthusiastic in his Parliamentary duties as he had been when a county councillor, and there is little doubt that he allowed too great a strain to be placed on his health by his close attention to his work at Westminster, which he carried on without abandoning a professional practice of an exacting class. Only a man of exceptional grit could have served both his party and his patients as devotedly as did Mr. Cooper. He was in the House of Commons and apparently well on the evening of Oct. 6th, but was seized with sudden symptoms after he had returned home. His condition grew rapidly worse and he died within 24 hours. His remains were buried on Oct. 12th, in the presence of a gathering which included several of his former colleagues of the County Council and of the House of Commons, amongst whom was the President of the Local Government Board.

Mr. Cooper leaves a widow, a married daughter, and four sons, to one of whom, Mr. Reginald Cooper, we are indebted for some of the foregoing facts of his father's career, and the same gentleman has given us the following typical time-table of a recent day's work such as Mr. Cooper was doing almost down to the time of his death. From 9 A.M. until 11 he would see patients at home and then pay professional visits until 1.30 or 2 in the afternoon. After a light lunch he was to be found in his place in the House of Commons as early as the Speaker, and he remained keenly following the debate until 6 or 7, when he returned home

for two hours more work in his surgery. He then returned for an all-night sitting of the House, sometimes addressing a meeting of his constituents on behalf of the Budget on his way back to Westminster. To find a match for such public activity in a medical practitioner we have to cast our minds back to the strenuous life of the Parliamentarian and reformer who founded this journal.

EDWARD CLAPTON, M.D. LOND., F.R.C.P. LOND., F.R.C.S. ENG.

LATE PHYSICIAN TO, AND LECTURER ON MATERIA MEDICA AND THERAPEUTICS AT, ST. THOMAS'S HOSPITAL.

Dr. Edward Clapton, whose death we announced last week, was not known to the present generation of medical men as an active practitioner, for he has lived in retirement at Lee for a considerable time, and was in his eightieth year when he died. He was associated throughout his active career with St. Thomas's Hospital, where he passed his student life and upon the staff of which he served subsequently. He was a man of great industry and capability, and was one of the few who have taken the Fellowship of the Royal College of Surgeons by examination and subsequently turning their attention to medicine have been elected to the corresponding dignity of the senior College. In the year 1857 he graduated M.D. at the University of London and also took his F.R.C.S. Eng., and in the next year he was admitted to the Membership of the Royal College of Physicians. At this time of his life the subject of plants and their medicinal application, in which he always took a lively interest, began to engross his attention, and in 1860 he was appointed lecturer on botany in St. Thomas's Hospital Medical School, a post which was the preliminary to his appointment as assistant physician and lecturer on materia medica in the following year. Ten years later he was elected full physician to the hospital, a post from which he retired in 1875 when he was still in middle age, though he remained in active practice for many years later. He took a great interest in other matters besides those immediately concerned with his profession. A religious man, he was an earnest student of Biblical archæology, as was evidenced by his works on "The Precious Stones of the Bible" and his "Life of St. Luke," a catena of statements collected from the New Testament, Josephus, and the writings of the Fathers. In this little book he made the ingenious suggestion that "the thorn in the flesh, the messenger of Beelzebub," of which St. Paul complained, was recurrent malaria produced by mosquitoes under the control of Beelzebub, the Lord of Flies, a theory which would seem to credit the apostle with an astonishing gift of scientific prevision. He wrote a "Life of St. George," and also turned his attention to the history of his own science. Many will remember how Dr. Clapton journeyed to Cos to identify the plane tree under which the Father of Medicine sat to expound his wisdom, and how his modern disciple was so confident that he had achieved his quest that he presented the Royal College of Physicians of London with two branches plucked from the sacred tree. He wrote freely upon drugs, amongst his papers being those on the "Acid Oxalates of the Earths," the "Action of Copper in the Human System," and the "Action of Tea," whilst he prepared a map of the geographical distribution of the medicinal substances contained in the British Pharmacopœia of 1867. Dr. Clapton had a very practical and enlightened knowledge of the action of medicines and their variability in different constitutions. Besides his professional fellowships he held those of the Linnæan and Zoological Societies, and he was no collector of empty titles but a man who followed up keenly every interest with which he concerned himself. No man, perhaps, followed out more thoroughly the maxim that if a thing be worth doing it should be done with all one's might. The way in which he undertook the examination of the health resorts at home and abroad was an illustration of this. In holiday times he visited in succession all the spas of Europe in order to assure himself of their utility or the reverse, and his authority in this matter was undoubted. We are indebted to one of his former colleagues at St. Thomas's Hospital for the following appreciation of his personal qualities.

"Dr. Edward Clapton was the type of an amiable gentleman. We shall long remember his earnest, modest gaze, at once the expression of his gentle, cheery nature, and the assurance to friends and patients alike that there was a ready access to a heart full of human sympathy. In action he was an indefatigable worker, and it was not until the yoke of many years oppressed him that his friends induced him to cease from labour. With great reluctance he did so, and gave up most of his cherished work. But even so he turned with avidity to the pursuit of a hobby which had occasionally influenced him—the formation of a collection to illustrate the early history of Judaism, of Christianity, and of Medicine—a collection which I believe to be unique. It was very pleasant to listen to him when with uncommon lucidity and enthusiasm he expounded the symbolism of the precious stones in the breast-plate of the high priest. Reference to these matters reminds one of the personal interest which he took in the rearrangements of the parochial matters incident to the establishment of the episcopate in Southwark. His friends have often said that he ought to have been a bishop, and truly he would have well filled a cathedral throne. To know him was to esteem him, and to know him intimately to love him."

Dr. Clapton's remains were buried at Stamford, Lincs, on Oct. 2nd, on which day a memorial service was held at the church of St. Margaret's, Lee.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Weeks, formerly professor of surgery at the Medical School of Maine, Brunswick.—Dr. W. T. Smith, formerly professor of physiology in Dartmouth Medical School, Hanover, U.S.A.—Dr. Heurtaux, formerly professor of clinical surgery in the Nantes Medical School and associate of the Paris Academy of Medicine.—Dr. Tourneaux, formerly physician to the Rouen hospitals.—Dr. Julius Elischer, *privat-docent* of gynæcology in the University of Budapest.

Medical News.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At the Second Professional Examination of the Examining Board in England in Anatomy and Physiology held on Sept. 30th and Oct. 1st, 4th, and 5th, 70 candidates presented themselves, of whom 54 per cent. were approved and 46 per cent. were rejected. The following are the names of the successful candidates:—

Edward Smith Abraham, University of Bristol; Harry Arnold Ash, Guy's Hospital; Raymond Brewitt-Taylor, St. Bartholomew's Hospital; Nai Cheune, London Hospital; Edward Robert Cecil Cooke, B.A. Cantab., Cambridge University; Frank Cuninghame Cowtan, St. Thomas's Hospital; William Townsend Dobson, University College, Cardiff; Alexander Rentoul Esler, St. Thomas's Hospital; Meredydd Ffoulkes, St. Thomas's Hospital; Ali Athar Hassan Fyzee, Bombay University; Hubert Gibson, Liverpool University; Norman Grellier, Charing Cross Hospital; Cecil Cantilupe Harrison, B.A. Cantab., Cambridge University and St. Mary's Hospital; William George Helsby, Charing Cross Hospital and King's College; Gordon Alexander Hodgson, Leeds University; George Ashby Hooton, St. Bartholomew's Hospital; George James Proctor Huddleston, University College; Frank Mainwaring Hughes, London Hospital; Frederick Malcolm Stirling Hulke, Middlesex Hospital; Arthur Richard Jennings, B.A. Cantab., Cambridge University; James Evelyn Thoresby Jones, University College; Geoffrey William King, Guy's Hospital; Edmund Thomas Howard Lea, King's College and Westminster Hospital; Charles Cooper Ling, London Hospital; Edward MacMahon Mahon, Guy's Hospital; Charles Harry Greville Penny, Guy's Hospital; John Lansdowne Perceval, Guy's Hospital; Montague Pern, Guy's Hospital; Oswald Pitt, Manchester University; Maitland Radford, University College; Harold Robinson, Manchester University; Arthur Burch Rosher, Charing Cross Hospital; Herbert Sharpe, B.A. Cantab., Cambridge University and Guy's Hospital; Edward Wing Twining, University College; Chunilal Bhimbhai Vakil, Bombay University and St. Bartholomew's Hospital; Arnold Viney, St. Thomas's Hospital; Trevor Mathias Owen Williams, B.A. Cantab., Cambridge and Birmingham Universities; and Henry Stanley Young, St. Thomas's Hospital.

At the quarterly examination in Practical Pharmacy held on Oct. 7th and 8th the following gentlemen were approved:—

Alan Douglas Anderson, University College; Sealy Highmore Andrews, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Cecil Stuart Baxter, Liverpool University; Cecil Bluett, Sydney University and London Hospital; Lancelot Bromley, B.A. Cantab., Cambridge University and Guy's Hospital; Arthur

Charles Oakley Brown, Birmingham University and private study; Norman Stuart Carruthers, Guy's Hospital; Thomas Hungerford Cresswell, Middlesex Hospital; David Lloyd Davies, University College, Cardiff; Henry Harvard Davis, Guy's Hospital; James Anthony Delmege, Guy's Hospital; James Douglas Driberg, London Hospital; Bertie Cecil Eskell, University College, Bristol; Arthur George Bisset Fenwick, St. Thomas's Hospital; Frederick Thomas Fisher, Birmingham University; Robert William Beor Gibson, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Kenneth Banks Greenwood, London Hospital; Evan Williams Griffith, University College, Cardiff; Norman Lester Guilford, King's College; Edward Howard Heaton, London Hospital; Herbert Richard Barnes Hull, University College, Bristol; John Robert John, University College, Cardiff; Sydney Anderson Keys, Middlesex Hospital; Thomas Clatworthy Kidner, private study; Alfred Bertie Kramer, Edinburgh University and London Hospital; William Ewart Latham, Liverpool University; David Charles Lloyd, Guy's Hospital; James Parkinson Lupton, St. Thomas's Hospital; William Fidler Mason, Leeds University; John Mitchell Mehaffey, London Hospital; Claude Harry Mills, Guy's Hospital; Charles Gordon Holland Moore, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Richard Goodhart Oram, Guy's Hospital; William Percivall Penhale, Middlesex Hospital; Harold Fey Percival, B.A. Cantab., Cambridge University and Guy's Hospital; John Pryce Davies, Guy's Hospital; Arthur Joseph Rae, B.A. Cantab., Cambridge University and St. Thomas's Hospital; Walter Alexander Reynolds, St. Mary's Hospital; Charles Dudley Roberts, Guy's Hospital; Alec Linford Saul, L.D.S. Eng., Guy's Hospital; Thomas Stoney Sharpley, Guy's Hospital; Thomas Harold Thomas, London Hospital; Llewellyn Rhys Warburton, St. Thomas's Hospital; William Hall Watson, Guy's Hospital; Vivian Thomas Pearce Webster, B.A. Cantab., Cambridge University and Guy's Hospital; and Leslie Gordon White, Leeds University.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held recently the following candidates passed in the subjects indicated:—

PRIMARY EXAMINATION, PART II.

Anatomy.—J. M. Coplans, Westminster and Guy's Hospitals; M. J. McEnery, Royal Free Hospital; O. W. D. Steel, Cambridge and London Hospital; W. G. Tickell, Middlesex Hospital; W. H. Vincent, St. Mary's Hospital; and C. G. Waddington, Leeds.

Physiology.—P. Dvorkovitz, St. Bartholomew's Hospital; J. P. Jones, Guy's Hospital; M. J. McEnery, Royal Free Hospital; O. W. D. Steel, Cambridge and London Hospital; C. G. Waddington, Leeds; and V. J. A. Wilson, Liverpool.

FOREIGN UNIVERSITY INTELLIGENCE.—*Amsterdam:* Dr. J. P. Kleiweg de Zwaan has been recognised as *privat-docent* of the History of Medicine.—*Berlin:* Dr. Forster has been recognised as *privat-docent* of Psychiatry, Dr. J. Katzenstein as *privat-docent* of Otology, and Dr. Paul Franckel as *privat-docent* of Forensic Medicine.—*Breslau:* Dr. Robert Scheller of Königsberg has been recognised as *privat-docent* of Hygiene.—*Budapest:* Dr. Edmund Krompecher, *privat-docent* of Histology and Bacteriology, has been promoted to an Extraordinary Professorship.—*Cornell:* Dr. Charles N. B. Camac has been appointed Professor of Medicine; Dr. Frank S. Meara, Professor of Medicine and Therapeutics; and Dr. William J. Elser, Professor of Bacteriology.—*Greifswald:* Dr. Edmund Allard, *privat-docent* of Medicine, has been granted the title of Professor.—*Harvard:* Dr. Edward H. Nichols has been appointed Assistant Professor of External Pathology.—*Kazan:* Dr. V. Burgsdorf has been appointed Professor of Dermatology.—*Kharkoff:* Dr. A. Cherevkoff has been appointed Professor of Physiology.—*Munich:* Dr. Max Richter of Vienna has been appointed Professor of Forensic Medicine.—*Prague (Bohemian University):* Dr. Wenzel Libensky has been recognised as *privat-docent* of Medicine, and Dr. Franz Procházka as *privat-docent* of State Medicine.—*Vienna:* Dr. Karl Reitter has been recognised as *privat-docent* of Medicine, Dr. Hans Lauber as *privat-docent* of Ophthalmology, and Dr. Albert Blau as *privat-docent* of Midwifery.

CHINESE PORK.—A recent report of the City medical officer of health states that the cargo of frozen pigs from China which arrived in the s.s. *Palermo* on July 31st, after they had been examined by Dr. Herbert Williams, of the Port, for trichinosis, from which they were found to be free, were transferred to the Up-town Stores, in the jurisdiction of the City authority. Although they bore a label stating that they had been inspected and were fit for food, it was found that the glands had not been examined, and therefore such inspection must have been of a perfunctory character and certainly not sufficient to allow of their being admitted without further investigation. For satisfactory examination it was necessary to have them thawed, and in the interests of the owners it was arranged that this should be done as the market required. Out of a total consignment of 4663 carcasses 884 have been examined, and of these 80 condemned as diseased and unfit for food. Further information on this subject will be found in our Parliamentary Intelligence in answer to a question put to the President of the Local Government Board.

MEDICAL MAYOR.—Mr. Henry Nuttall, L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been selected as the Mayor of Accrington.

THE GRESHAM LECTURES.—Dr. F. M. Sandwith, Gresham lecturer in physic, will give his four lectures for the Michaelmas Term on Oct. 26th and the three following days at the City of London School, Victoria Embankment. He will deal with "Some Medical Aspects of the Poor-law Commission" under the following heads: 1. Historical survey and modern requirements. 2. Medical relief and some causes of pauperism. 3. Pauperism as it affects women and children. 4. Further causes of pauperism. These lectures are open free to the public and will begin each evening at 6 o'clock.

A GENERAL meeting of the Balneological and Climatological Section of the Royal Society of Medicine will be held at 20, Hanover-square, London, W., on Friday, Oct. 29th, at 5.30 P.M., at which the new President, Dr. Leonard Williams, will be inducted to the chair, and will deliver a presidential address entitled "To Redress the Balance." The annual dinner will take place at Oddenino's Imperial Restaurant, Regent-street (Glasshouse-street entrance), on the same evening when Dr. Williams will preside. A testimonial to Dr. S. P. Sunderland for his services to the Balneological Society during the 13 years that he was secretary will be presented at the dinner, and it is particularly hoped that there will be a good attendance.

CENTRAL MIDWIVES BOARD.—A meeting of the Central Midwives Board was held at Caxton House, Westminster, on Oct. 7th, when Dr. F. H. Champneys occupied the chair. A letter from the Clerk to the Privy Council, transmitting an Order of Council continuing the present rules in force for a further period of one year from Sept. 30th, 1909, was received. Before the Board directed this letter to be entered on the minutes Mr. E. Parker Young said that as no provision had been made for the payment of medical men called in by midwives some protest should be made. Resolution after resolution had been sent up by the Board on the subject, but nothing had been done. A short Bill could be passed through Parliament easily because the matter was non-contentious. The Board having had its attention called to the report of the Midwives Act committee decided to hold a special meeting of the Board on Oct. 28th. The chairman, in the course of his remarks, intimated that the question of payment of medical men called in by midwives was one of the important matters that should be considered. A letter from Mr. W. J. Robertson of Clapham, complaining of the conduct of a certified midwife, was further considered. The Board decided to refer the matter to the local supervising authority. A petition, signed by Dr. S. H. Smith of York and other persons interested in the training of midwives in Yorkshire, asking the Board to permit the written examination to be held at some recognised centre in the county, was further considered. The Board decided (*a*) that Leeds should be constituted one of the provincial examination centres; and (*b*) that the secretary should be instructed to communicate with the registrar of the University of Leeds as to holding the examinations at the University, and as to the best method of advertising locally for examiners. A letter was considered from the county medical officer of Worcestershire proposing that in cases where a certified midwife sends in a notification of a stillbirth under the Notification of Births Act, the notice required by Rule E. 20 (c) of the Board's rules should not be insisted upon. The Board decided that the reply should be that the Board has no power to dispense with any of its rules. A letter was considered from the clerk of the Hunts county council suggesting that some means—e.g., advertising in the local papers—should be taken to draw the attention of the public and of uncertified women who are still practising as midwives to the fact that after April 1st, 1910, they will be debarred from so practising. It was decided that the Board consider the suggestion desirable, and that it should be carried out by the local supervising authority. A letter was considered from the secretary of the Miller General

Hospital for South-East London inquiring what course should be adopted on an occurrence of an outbreak of infectious disease in the house of a parturient woman. The Board decided that the reply should be that the Board does not see its way to advise on such cases as are not dealt with by its rules and regulations.

THE MEDICAL SERVICE OF THE METROPOLITAN ASYLUMS BOARD.—At the last meeting of the Metropolitan Asylums Board the hospitals committee reported that it had considered as to whether or not there should be a time-limit of service for assistant medical officers in the infectious hospitals of the Board. The medical superintendents had been consulted on the subject. The committee had finally decided (1) that there should be a time-limit of service for four years for junior assistant medical officers, and (2) that in the case of junior medical officers promoted to be senior assistant medical officers the limit of the total period of service should be ten years. The decision of the committee was confirmed by the Board.

HOSPITAL SATURDAY AT BIRMINGHAM.—The year's collections to date amount to £19,306 9*s.* 7*d.*, and contributions are still outstanding. The amount is about £1000 less than last year. The committee again recommends that £10,000 be distributed among the Birmingham hospitals and nursing societies. The convalescent home work has been carried on with great success, and the efforts in obtaining open-air treatment for consumptives have been of great value. The committee feels that the time has come to establish a home for consumptives, and hopes to make an official announcement at an early date. £4000 have been given or promised for this purpose, but at least £8000 more are required.

KING'S COLLEGE (UNIVERSITY OF LONDON).—A course of special lectures on the Pineal and Pituitary Bodies will be delivered in the Physiological Laboratory at King's College on the following Mondays at 4.30 P.M. Nov. 1st, 8th, and 15th, on the Pituitary Body, by Professor W. D. Halliburton, F.R.S; Nov. 29th, Dec. 6th, and Dec. 13th, on the Pineal Body and Reissner's Fibre, by Professor A. Dendy, F.R.S. The course is free to all members of King's College, to all students of medical schools in London, to all internal students of the University of London, and to medical practitioners on presentation of their cards. As a result of the recent examination at the King's College Hospital Medical School (University of London) Mr. P. L. Gibson (Trinity College, Oxford) was awarded the University Scholarship at this school. *Proxime accessit*, Mr. S. P. Rowlands.

APOTHECARIES' HALL OF IRELAND.—At a meeting of the Court of the Apothecaries' Hall the following were elected examiners for the ensuing year:—Surgery: Professor Conway Dwyer and Sir Thomas Myles. Medicine: Dr. J. M. Day and Dr. John O'Donnell. Midwifery: Dr. R. H. Fleming and Mr. R. J. White. Ophthalmology: Dr. E. Magennis and Dr. R. J. Montgomery. Pathology: Mr. J. L. Keegan and Dr. R. J. Rowlette. Medical Jurisprudence: Dr. J. C. M'Walter and Mr. W. Fottrell. Hygiene: Sir Charles Cameron and Mr. H. F. Powell. Materia Medica: Mr. J. D. Crinion and Mr. Seymour Stritch. Pharmacy: Dr. F. G. Adye-Curran and Dr. E. F. Hanrahan. Physiology and Biology: Professor D. J. Coffey, Dr. W. O'Kelly, and Dr. John Knott. Anatomy: Professor E. P. M'Loughlin and Mr. P. J. Fagan. Chemistry: Professor Hugh Ryan and Mr. J. J. O'Sullivan. Physics: Professor Hugh Ryan and Mr. B. Bourke Kennedy.

FIRE TESTS WITH FLANNELETTE.—The British Fire Prevention Committee conducted a further series of fire tests with flannelette at their Regent's Park testing station on Oct. 6th, the number of specimens that have now been under review being over 400. The reason for these tests is the great number of fatalities arising from flannelette catching fire. Ordinary flannelette, fine flannelette, non-inflammable flannelette, union and wool materials were under test in lengths of one or two yards and in the form of garments on dummies representing children. The materials had been washed at three different laundries 5, 10, and 20 times respectively. The afternoon's operations went to show that there is certainly a non-inflammable treatment available of practical value by which flannelette can be made effectively flame-proof. The object of the tests was to endeavour to obtain precise data as to the fire-resistance of treated flannelette after many washings, as also to devise some easy method of rapidly proving the precise resistance of flannelette sold as "non-inflammable." A report on the subject illustrated by diagrams will be shortly issued by the committee.

THE ROYAL COLLEGE OF PHYSICIANS OF LONDON.—Professor J. A. Lindsay will deliver the Bradshaw Lecture at the Royal College of Physicians on Nov. 2nd, taking for his subject "Darwinism and Medicine," and Professor Sir T. Clifford Allbutt will deliver the Fitz-Patrick Lecture on "Greek Medicine in Rome" on Nov. 4th and 9th.

WESTMINSTER HOSPITAL MEDICAL SCHOOL.—The following entrance scholarships have been recently awarded in this school:—J. S. Ranson: Epsom Scholarship, value 120 guineas. S. B. White: University Scholarship, value 70 guineas. M. C. Breese: Scholarship in Arts, value £60. H. J. Hoyte: Natural Science Scholarship, value £60. A. M. Hughes: Scholarship in Arts, value £40.

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL.—The annual "public night" will be held on Oct. 20th when Mr. W. Arbuthnot Lane will give an address on "Civilisation." The chair will be taken at 8.30 P.M. by Mr. Arthur E. Barker. The first entrance scholarship at the University College Hospital Medical School (University of London) has been awarded to Mr. G. C. Chubb, D.Sc., and the second scholarship to Mr. Julian Taylor, both of University College, London.

THE NORTH LONDON MEDICAL AND CHIRURGICAL SOCIETY.—The nineteenth session of this society opened successfully on the evening of Oct. 9th with a conversazione, given by the President and council, in the board-room of the Great Northern Central Hospital. The guests numbered between 60 and 70, and were received by the President, Dr. James Crabb. An excellent programme of music had been arranged by Mr. L. H. Glenton-Kerr, the secretary of the hospital, to whom the society is greatly indebted in many directions. There was a display of surgical instruments and appliances in the hall and the adjoining rooms. A hearty vote of thanks was accorded to the performers and to Mr. Glenton-Kerr and the guests then dispersed after a very successful evening.

LITERARY INTELLIGENCE.—Messrs. Rebman, Limited, announce for issue in October a new work on naval hygiene by Dr. James Duncan Gatewood of the United States Naval Medical School, and a little book by Dr. Robert Park entitled "The Case for Alcohol"; or, the Actions of Alcohol on Body and Soul, based largely upon the researches and discoveries of the late M. Emile Duclaux of the Pasteur Institute in Paris. The same publishers have also in the press a new edition of Sir John William Moore's well-known book on "Meteorology, Practical and Applied," which has been revised and largely rewritten, and the authorised translation into English from the German of Dr. Max Joseph's "Short Handbook of Cosmetics."—Messrs. Skeffington have in the press and will publish immediately a new book by Dr. A. G. Mortimer entitled "The Shadows of the Valley." The book is intended to supply a guide in sickness and death for the use of sick people and for all persons who minister to them.

ANNUAL DINNER OF THE CONTINENTAL ANGLO-AMERICAN MEDICAL SOCIETY.—The annual dinner of this society was held on Oct. 9th in Paris, Sir Malcolm Morris, K.C.V.O., being in the chair. Among the guests were Professor Robin, Professor Segond, and Professor Chauffard. The chairman, in his toast to "The Society," laid stress on the fact that the presence of English and American medical practitioners in a health resort brought to it an undeniable increase of prosperity. Moreover, they protect their countrymen from falling into unworthy hands, directing them to "the shrines of scientific truth, among which none in the world are more famous than those in the great city of Paris." Hence the utility of the society in bringing to the notice of physicians in the United Kingdom and in America responsible men to whom they

could with confidence entrust their patients. Professor Robin, in an eloquent speech, referred to the practical value of Anglo-Saxon contributions to medical science. Vaccination with Jenner, anæsthetics with Simpson, antiseptics with Lister were cited as examples. In the course of the evening Dr. L. N. Robinson, the former honorary secretary, was presented with a handsome silver loving-cup as a token of esteem and gratitude for his services to the society, which now entered into its twenty-first year of existence.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Holiday of the Commons.

A MUCH-NEEDED holiday of a week has been taken by the House of Commons. The committee stage of the Finance Bill having been concluded, it was necessary that a short interval should elapse before the proceedings on report were begun. The Government, recognising that the strain put on the physical endurance of Members during the past few months has been without parallel in recent years, wisely resolved to give the House a holiday. It was welcome on all sides, especially to the Members of the Opposition, some of whom have expended a great amount of energy in critising the details of the Finance Bill. The air at Westminster has recently been charged with political rumour as to the fate of this measure, and when the House resumes, the strenuous Parliamentary life will begin again with redoubled energy. The breathing space of a week is therefore felt to be a great relief.

Medical Men and the Petrol Duty.

The CHANCELLOR of the EXCHEQUER some time ago promised to a deputation of medical men that a rebate of half the duty would be given to members of their profession in respect of the petrol used by them in their motor-cars. Mr. LLOYD-GEORGE, accordingly, has moved an amendment to the fifth schedule of the Finance Bill to carry out his promise. It was accepted without discussion and relieves from half the petrol tax "motor spirit used for the purpose of supplying motive power to a motor-car kept by a duly qualified medical practitioner while it is being used by him for the purposes of his profession."

The Housing and Town Planning Bill.

The Housing and Town Planning Bill has been read a third time and passed by the House of Lords. The amendments which have been introduced into the measure since it left the House of Commons have been far-reaching and drastic. It is certain that objection will be taken to them when that House comes to consider them, and unless agreement can be reached the Bill will be dropped. Some words used by the Earl of CREWE in the discussions which arose on the third reading are ominous. He confessed a certain scepticism whether the Bill would ever pass into law. It is apparent from the Earl's remarks that the Government is unwilling to accept the measure in the shape to which the House of Lords has reduced it. The next stage in its progress is the consideration by the Commons of the Lords' amendments.

HOUSE OF COMMONS.

WEDNESDAY, OCT. 6TH.

The Decrease of Hydrophobia.

Sir GEORGE KEKEWICH asked the President of the Local Government Board what were the number of deaths and the death-rates per million from hydrophobia in Great Britain and France, respectively, in each of the last 30 years.—Mr. BURNS furnished the following written reply: The number of deaths from hydrophobia and the death-rates per million of population in Great Britain in each of the years from 1878 to 1907 are shown in the appended table. Similar information as regards France is, I am informed, not available:—

Year.	Number of deaths in Great Britain.	Death-rates per million persons living.	Year.	Number of deaths in Great Britain.	Death-rates per million persons living.
1878	51	1·78	1893	7	0·21
1879	39	1·34	1894	13	0·38
1880	40	1·36	1895	20	0·58
1881	37	1·24	1896	8	0·23
1882	30	1·00	1897	6	0·17
1883	34	1·12	1898	2	0·06
1884	29	0·94	1899	—	—
1885	60	1·93	1900	—	—
1886	26	0·83	1901	1	0·03
1887	29	0·91	1902	3	0·08
1888	14	0·44	1903	—	—
1889	30	0·93	1904	1	0·03
1890	8	0·24	1905	—	—
1891	7	0·21	1906	—	—
1892	6	0·18	1907	—	—

THURSDAY, OCT. 7TH.

Reported Case of Beri-Beri in Ireland.

Mr. COXON O'KELLY asked the Vice-President of the Department of Agriculture (Ireland) whether his attention had been called to the fact that a Norwegian named Obsen, employed at the whaling station on Iniakea Island, in the county of Mayo, was recently admitted to the local hospital in Belmullet, and was certified by the hospital doctor to be suffering from beri-beri; and if so, was he in a position to state the causes that led to the outbreak of this disease?—Mr. REDMOND BARRY (on behalf of Mr. T. W. RUSSELL) answered: The department has no information on the subject.

Mr. DILLON: Will the honourable and learned gentleman make inquiry into the matter, and also into the general feeling of the people in the district?—Mr. REDMOND BARRY: I will communicate with the Vice-President of the Department of Agriculture on the subject.

Chinese Pork in the English Market.

Mr. FELL asked the President of the Local Government Board how much of the Chinese pork had now been passed and placed upon the market; whether the same was all in a good condition; and when the report of the inspectors would be received.—Mr. BURNS replied: I am informed that 1182 carcasses out of the whole consignment of Chinese pork had up to, and including, yesterday been thawed out and examined; 107 carcasses had been condemned and the remaining 1075 carcasses had been passed as fit for consumption. I understand that a report to the corporation by the medical officer of health, in which he refers to the results of the examination of the carcasses, so far as it has at present been carried out, will be issued to-day.

Mr. DILLON: Will the right honourable gentleman take into consideration the desirability of absolutely prohibiting the importation of Chinese pork into this country for human food?—Mr. BURNS: No, sir, I cannot give any such undertaking.

Mr. KILBRIDE: May I ask whether the right honourable gentleman has received an assurance through the British Ambassador in China that all these pigs had been fed on cooked rice?—Mr. BURNS: Inquiries were made by the Local Government Board some months ago before this consignment arrived as to the character of the pork and as to the method of feeding the pigs, and we were quite satisfied that it was satisfactory. I can state further, in answer to the honourable Member, that the *Meat Trade Journal* says of this pork: "Such of it as we have had the opportunity of seeing was excellent pork of its kind, and that it realised the prices quoted, proves it; finally, that it passed the double extra inspection of the Port Sanitary Authority and the eagle-eyed examination of the practical inspectors attached to the Central Meat Market demonstrates that such of it as went into the hands of the retail butcher was sound and wholesome." I have myself gone with my officers into refrigerating stores in the wholesale market and into the retail shops and I also had the pleasure of going down to the New Cut, Lambeth, on Saturday night to see whether the opinion of those better qualified than myself could be confirmed by a layman.

Mr. DILLON: Has the right honourable gentleman tasted the pork?—Mr. BURNS: Yes, I have.

Mr. W. THORNE: May I ask what guarantee there is that these condemned carcasses are not used for human consumption?—Mr. BURNS: The Port Sanitary Authority and the riverside local authorities, when they condemn animals as being unfit for human consumption, either have them chemically destroyed or send them to the dust-destructor to be burned.

Mr. FELL: Has the right honourable gentleman received any advices of any further cargoes or shipments of pork from China either arrived or expected shortly to arrive in England?—Mr. BURNS: The answer is in the negative.

Tests for Colour Blindness.

Mr. HENNIKER HEATON asked the President of the Board of Trade whether he was now in a position to give the results of his inquiries as to the tests for colour blindness used by foreign nations.—Mr. TENNANT (who replied on behalf of Mr. CHURCHILL) wrote: The Board of Trade is already in possession of a considerable amount of information with regard to the colour vision tests adopted by the principal maritime countries for their merchant services. With a view, however, to making the return moved for and ordered on July 14th as complete as possible, it requested the Foreign Office to obtain further detailed information in the case of certain important countries. On receipt of that information the return in question will be presented.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BOYD, WILLIAM, M.B. Edin., has been appointed Assistant Medical Officer at the Derby Borough Asylum.

CONNOLLY, T. J., M.B., B.S. R.U.I., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Kinvarra District of the county of Galway.

CROWE, H. NEVILLE, M.B., Ch.B., M.R.C.S., L.R.C.P. Lond., has been appointed Assistant Surgeon to the Ophthalmic Hospital, Worcester.

GEDDES, A. CAMPBELL, M.D. Edin., Ch.B., has been appointed to the Chair of Anatomy in the School of Medicine of the Royal College of Surgeons in Ireland.

GLASHAN, HERBERT W., M.B. Aberd., has been appointed Assistant Medical Officer to the Natal Government Asylum, Pietermaritzburg.

HUME, J., M.S., C.M., D.P.H., has been appointed Clinical Assistant to the Chelsea Hospital for Women.

LAPAGE, C. P., M.D. Vict., M.R.C.P. Lond., has been appointed Lecturer in the Observation of Children and School Hygiene to the Manchester University.

PRICE, E. W., M.R.C.S., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Narberth District of the county of Pembroke.

SPRAWSON, F. E., M.R.C.S., L.R.C.P. Lond., L.D.S., has been appointed Medical Superintendent of the National Dental Hospital jointly with Mr. Steadman.

STEADMAN, F. ST. J., M.R.C.S., L.R.C.P. Lond., L.D.S., has been appointed Medical Superintendent of the National Dental Hospital jointly with Mr. Sprawson.

WATSON, C. GORDON, F.R.C.S. Eng., has been appointed Surgeon to the Royal General Dispensary, E.C.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

AYLESBURY, ROYAL BUCKINGHAMSHIRE HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, washing, and lodging.

BLACKBURN AND EAST LANCASHIRE INFIRMARY.—Senior House Surgeon, also Junior House Surgeon. Salaries £110 and £80 per annum, with board, residence, &c.

BOURNEMOUTH, ROYAL NATIONAL SANATORIUM FOR CONSUMPTION AND DISEASES OF THE CHEST.—Resident Medical Officer. Salary £10 per month, with board, residence, and washing.

BRIGHTON, SUSSEX COUNTY HOSPITAL.—Third House Surgeon, unmarried. Salary £50 per annum, with apartments, board, and laundry.

BRISTOL ROYAL HOSPITAL FOR SICK CHILDREN AND WOMEN.—Assistant House Surgeon. Salary £50 per annum, with board, rooms, and attendance.

BRISTOL ROYAL INFIRMARY.—Resident Casualty Officer for six months. Salary at rate of £50 per annum, with board, lodging, and washing.

CARDIFF INFIRMARY (GENERAL HOSPITAL).—House Surgeon. Salary £60, with board and residence.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Physician to Out-patients.

COLCHESTER, ESSEX COUNTY HOSPITAL.—House Physician, also House Surgeon. Salary in each case £80 per annum, with board, washing, and residence.

CORK, UNIVERSITY COLLEGE.—Demonstrator in Physiology. Salary £150 per annum.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark Bridge-road, London, S.E.—House Physician for six months. Salary at rate of £60 per annum, with board, residence, and washing.

HANLEY EDUCATION COMMITTEE.—School Medical Officer (female). Salary £200 per annum.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Resident House Physicians for six months. Salary £25.

HULL, ROYAL INFIRMARY.—Casualty House Surgeon. Salary at rate of £60 per annum, with board and lodging.

IPSWICH, EAST SUFFOLK AND IPSWICH HOSPITAL.—House Surgeon. Salary £65 per annum, with board, lodging, and washing.

KING EDWARD VII. SANATORIUM, Midhurst, Sussex.—Junior Assistant Medical Officer. Salary £100 per annum, with board, lodging, and attendance.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL (UNIVERSITY OF LONDON).—Sambrooke Medical Registrar.

LAMBETH WORKHOUSE, Renfrew-road, Lower Kennington-lane, S.E.—Assistant Medical Officer. Salary £150 per annum, with board, apartments, and washing.

LEAVESDEN ASYLUM, Herts.—Second Assistant Medical Officer, unmarried. Salary £180 per annum, with board, lodging, and washing.

LEEK, STAFFORDSHIRE COUNTY ASYLUM, Cheddleton.—Junior Assistant Medical Officer. Salary £150 per annum, with board, apartments, and washing.

LIVERPOOL DISPENSARIES.—Assistant Surgeon, unmarried. Salary £100 per annum, with board and apartments.

LONDON THROAT HOSPITAL, 204, Great Portland-street, W.—Assistant Surgeon and two Assistant Anæsthetists.

MAIDSTONE, KENT COUNTY ASYLUM.—Fourth Assistant Medical Officer, unmarried. Salary £175 per annum, with quarters, attendance, &c.

MARGATE, ROYAL SEA-BATHING HOSPITAL.—Resident Surgeon. Salary at rate of £80 and £120 per annum, with board and residence.

MERTHYR TYDFIL WORKHOUSE.—Assistant Medical Officer. Salary £120 per annum, with apartments, rations, laundry, and attendance.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead and Northwood, Middlesex.—Senior and Junior Resident Medical Officers. Salary £100 and £50 per annum respectively, with board and residence.

NEW HOSPITAL FOR WOMEN, Euston-road, N.W.—Two House Surgeons also Clinical Assistant (females).

NOTTINGHAM GENERAL DISPENSARY.—Assistant Resident Surgeon, unmarried. Salary £160, with apartments, attendance, light, and fuel.

NOTTINGHAM GENERAL HOSPITAL.—Assistant House Physician. Salary £60 per annum, with board, lodging, and washing. Also House Surgeon. Salary £100 per annum, with board, lodging, and washing.

PADDINGTON GREEN CHILDREN'S HOSPITAL, London, W.—House Physician, also House Surgeon, both for six months. Salary in each case at rate of 50 guineas per annum, with board and residence.

PARTICK, BURGH OF.—Medical Officer of Health. Salary £250 per annum.

PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N.—House Surgeon, House Physician, Junior House Surgeon, and Junior House Physician. Salaries of two former £75 per annum, and of two latter £40 per annum, with residence, board, and laundry.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—Assistant Resident Medical Officer. Salary £75 per annum, with board, residence, and washing.

ROYAL EAR HOSPITAL, Soho, London, W.—Honorary Assistant Anæsthetist.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, London, E.C.—Assistant Physician.

ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C.—Third House Surgeon. Salary at rate of £50 a year, with board and residence.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN, Waterloo Bridge-road, S.E.—Junior Resident Medical Officer. Salary at rate of £40 per annum, with board and washing.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, King William-street, Strand, W.C.—Pathologist and Curator. Salary £50 per annum. Also Assistant House Surgeon for six months. Salary £20, with luncheon and tea.

ST. MARY'S HOSPITAL, Paddington, W.—Assistant Physician to Out-patients.

SALFORD ROYAL HOSPITAL.—House Surgeon. Salary at rate of £60 per annum, with board and residence.

STAFFORD, STAFFORDSHIRE GENERAL INFIRMARY.—Assistant House Surgeon. Salary £82 per annum, with board, residence, and laundry

STAMFORD HILL AND STOKE NEWINGTON CHARITABLE DISPENSARY, N.—Assistant Medical Officer. Salary £100 per annum, with board and residence.

STROUD GENERAL HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and washing.

TAUNTON AND SOMERSET HOSPITAL, Taunton.—Resident Assistant House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and laundry.

TEIGNMOUTH HOSPITAL, S. Devon.—House Surgeon. Salary £80 per annum, with board, lodging, and washing.

TUNBRIDGE WELLS GENERAL HOSPITAL.—Junior Resident Officer. Salary £80 per annum.

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL.—Assistant in Bacteriology. Salary £60 per annum.

WAKEFIELD, CLAYTON HOSPITAL.—Senior House Surgeon, unmarried. Salary £120 per annum, with board, lodging, and washing.

WESTMINSTER GENERAL DISPENSARY.—Resident Medical Officer. Salary £120 per annum, with rooms, gas, coal, and attendance.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Surgeon. Salary £80 per annum, with board, lodging, and laundry.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Llansawel, in the county of Carmarthen; and at Barnet, in the county of Hertford.

Births, Marriages, and Deaths.

BIRTHS.

HUME.—On Oct. 5th, at Lahore, India, the wife of Norman H. Hume, I.M.S., of a son.

LONGLEY.—On Oct. 11th, at Strathearne, Saltburn, the wife of J. Alan Longley, F.R.C.S.E., of a daughter.

NEILD.—On Oct. 3rd, at 9, Richmond-hill, Clifton, Bristol, to Dr. and Mrs. Newman Neild, a daughter.

PEACOCK.—On Oct. 6th, at Steeple Aston, Oxon., the wife of Dr. W. E. Peacock, of a son.

MARRIAGES.

EVANS—FERGUSSON.—On Oct. 11th, at St. Matthias, Richmond, Surrey, Percy Evans, Major R.A.M.C., to Hilda Annie Drummond, younger daughter of the late James Fergusson, F.R.C.S.E., and Mrs. Fergusson.

SANDERS—ALLEN.—On Oct. 6th, James Herbert Sanders, M.D., J.P., of Hong-Kong, to Mary Beatrice, fourth daughter of W. H. Allen, Esq.

VAUGHAN—ANDERSON.—On Oct. 6th, at St. John's, Notting-hill, Edmund Wayne Vaughan, R.A.M.C., to Hilda Margaret Anderson, youngest daughter of the late Lieutenant-Colonel P. C. Anderson, R.A.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

CORRECTIVE DRUGS FOR ACETANILIDE AND ANTIPYRIN.

IN THE LANCET of August 14th, p. 511, we published a note based upon an American official report dealing with the toxic effects of acetanilide and its allied group of drugs. An interesting sequel to that report has been published recently in the same country by Dr. Worth Hale, who has conducted a series of experiments upon animals to determine to what extent the toxicity of acetanilide and antipyrin is modified by certain other drugs (Bulletin No. 53, Hygienic Laboratory, United States Public Health and Marine Hospital Station, Washington, D.C., September, 1909, pp. 60). He finds that the deleterious effect of acetanilide upon the heart is very imperfectly antagonised by caffeine. So far as the contractile power of the heart is concerned, the antagonism is very weak or even not present at all, and in some cases the two drugs seem to combine to depress the heart to a greater degree than acetanilide does when given alone. The heart rate is not slowed after the administration of this combination, as is the case when acetanilide is given alone, and the decreased heart rate due to acetanilide alone tends to become normal upon the subsequent injection of caffeine. Sodium bicarbonate, on the other hand, appears markedly to lessen the poisonous effects of acetanilide upon the heart in the experiments upon the intact animal. Dr. Hale found that the toxicity of acetanilide is considerably increased by codeine, heroin, and morphine, while salicylic acid and the bromides do not seem to alter its toxicity in any way. These experiments indicate, therefore, that caffeine and the opium alkaloids increase the danger of acetanilide mixtures, while sodium bicarbonate appears to be a fairly good antagonist. Although it is generally recognised that antipyrin is less toxic than acetanilide it has never been so popular as an ingredient of headache powders. Dr. Hale extended his experiments to antipyrin and found that caffeine is not materially antagonistic to it, but that it prevents the slowing of the heart rate. In experiments made upon the intact animal mixtures of these drugs were invariably more poisonous than antipyrin alone. Sodium bicarbonate however, was somewhat antagonistic to the heart effect of antipyrin, but when given to the intact animal it did not seem to lessen the toxicity of the antipyrin in any degree. Dr. Hale's work on these substances forms a valuable contribution to our knowledge of their action. Most of the so-called "headache powders" contain acetanilide admixed with caffeine or sodium bicarbonate or both. The caffeine was added under the idea, now shown to be erroneous, that it served to counteract the ill-effects of acetanilide on the heart. The addition of sodium bicarbonate was made in order to facilitate the ingestion of acetanilide by increasing its solubility. In point of fact, alkaline salts retard solution of acetanilide, and it is possible that sodium bicarbonate acts beneficially for the reason that it prevents the immediate admission of the whole dose of the drug into the blood stream.

HEALTH AND SANITATION IN SIERRA LEONE.

Mr. H. E. Leslie Probyn, C.M.G., the Governor of Sierra Leone, in his annual report to the Colonial Office, recalls the fact that the West Coast obtained the *sobriquet* of "The White Man's Grave" early in the nineteenth century, and says that as Sierra Leone was then and for many years after the settlement it became, and still is, specially identified with the phrase. He urges that modern statistics prove the words to be now a libel, and pleads that the graveyard metaphor should itself be buried. According to the Blue-Book for 1908 the number of deaths caused by malarial fevers has been greatly reduced, and this is attributed to the increasing importance which is being attached to anti-malarial sanitation. Owing to the good water-supply which Freetown enjoys, diseases of the digestive system also continue to decrease in number. On the other hand, owing to the susceptibility of the Sierra Leonean to chills the rate of deaths resulting from diseases of the respiratory organs continues a high one. The infantile death-rate in the last five years has ranged from 461 to 351 per 1000. This high rate is due to several causes, malaria being one; another is ignorance as to proper feeding, care, and cleanliness of the children in the first few months of their existence, and the unscientific midwifery of the middle and lower classes is also a factor. With a view to arriving at some estimate of the prevalence of ankylostomiasis in Freetown experiments were carried out at the clinical laboratory of the Colonial Hospital. Of 100 specimens of faeces examined 54 contained ankylostome ova, but in no instance was there observed any symptom directly attributable to the infection, or any skin eruptions such as have been described as due to ankylostomiasis. Mr. Probyn writes enthusiastically about the good effects which have followed the carrying out of the hill-station scheme under the provisions of the loan ordinance of 1903 at a cost of £86,000. He remarks: The hill station is a township designed exclusively for Europeans and built at an altitude of 800 feet near the western end of the half circle of high hills overlooking Freetown and the harbour; the mountain railway gives easy access to the station, while a pure water-supply, beautiful scenery, and provision for tennis and other games enable the residents to live under pleasant and healthy conditions. The hill station was planned as a fortress against the mosquito and was the first important tangible sign that war was to be waged against malaria. It is not and never was intended to be an experiment in the direction of ascertaining whether complete immunity from malaria can be attained by isolation of Europeans from the native community, as it is obvious that Europeans serving on the West Coast cannot live the absolutely isolated life requisite if the principle of segregation is intended to be strictly carried out in a scientific manner. It is the fact, however, that the health of officers at the hill station has been better than that of officers residing in Freetown or on the Protectorate, and this condition is doubtless in part due to the lessened risk of infection which is the result of the limited compliance with the principle of segregation. The European officials in Freetown and at the hill station are less than 100 in number, and recognising the danger of generalising from a few the medical department has adopted a system by which the relative health in different years and different localities is expressed by the days on which during a year the officials resident at a particular place have been on the sick list. According to this test it is found that the antiquinine period, of which the year 1898 may be taken as a type, is the least healthy, and that the improvement shown 10 years later, notable in all cases, is greatest in the case of residents at the hill station, less marked with the first-grade officers dwelling in Freetown, and smallest in the case of the artisans, fitters, and drivers employed on the railway, who live at Clines Town in the eastern ward of the city.

Antiquinine Period-type, 1898.

Days on sick list owing to climatic diseases.	.....	.....	Days on sick list owing to non-climatic diseases.
7·85			2·9

Anti-mosquito Period-type, 1908.

	Days on sick list owing to climatic diseases.	.....	.....	Days on sick list owing to non-climatic diseases.
Hill station	0·3	.....	.....	0·6
Freetown and Clines Town	2·74	.....	.....	2·0
Freetown (first grade officers)	2·4	.....	.....	0·25
Clines Town	2·9	.....	.....	3·0

A DISCLAIMER.

To the Editor of THE LANCET.

SIR,—The altogether unwarrantable and offensive use of my name in connexion with a recent advertisement of Page Woodcock's Pills is yet another instance of the unscrupulous manner in which the names of medical men are exploited against their will, and which the profession seems utterly powerless to prevent until legislation steps in to its aid. I need hardly say that the firm in question has received instructions for the immediate withdrawal of the advertisement.

I am, Sir, yours faithfully,

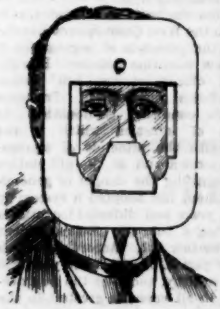
Devonshire-street, W., Oct. 13th, 1909. G. NORMAN MEACHEN.

THE ADMINISTRATION OF SANTONIN.

IN a recent number of the *Journal de Médecine Interne* M. Paul Pélissier makes a useful contribution to practical therapeutics in giving precise directions for the administration of santonin. He shows that this drug may be more toxic towards man than towards ascarides, and cites a case in which a fatal result followed the administration of little more than one-third of a grain to a child, aged six months. He insists that santonin should be given under special conditions and in a suitable vehicle, so that it may attack the parasite without being absorbed by the patient. He recommends as preparatory treatment the administration at bed-time and again in the morning, on an empty stomach, of a draught prepared as follows: Take one clove of garlic, cut small, and a glass of milk, and heat for ten minutes over a slow fire, afterwards straining and sweetening to taste. By cooking the garlic in this way its acrid properties are removed and the resulting draught is rendered agreeable to the palate. These draughts are said to render the parasites more vulnerable by modifying their conditions of life, and to introduce into the stomach an essential oil, which excites the acid secretion and diminishes the capacity of the stomach for the absorption of the anthelmintic. The santonin is then administered in the form of an emulsion, prepared in the following way: Dissolve the santonin in almond oil, 5 grammes, and shake with syrup of gum, 30 grammes, and orange-flower water, 60 cubic centimetres. The dose of santonin is calculated on the basis of 0·01 gramme for each year of age up to a maximum dose of 0·3 gramme. The draught is given in three portions, at intervals of five minutes, the first being given a few minutes after the morning dose previously referred to. During the forenoon lemonade is freely given, and two hours after the administration of the santonin the patient is purged with calomel. M. Pélissier states that, when dissolved in oil in this manner, santonin passes through the stomach without being altered by the gastric juices and exerts its specific action solely upon the parasites. It is essential that the santonin should be completely dissolved in the almond oil.

A FACE PROTECTOR FOR TRACHEOTOMY.

MUCH care has been devised in the perfection of appliances to ensure surgical patients against septic contamination during operation, but every now and then it is tragically brought home to us that the surgeon himself has remained undefended against risks even more serious. This is notably the case during the performance of tracheotomy for diphtheria, which has on several occasions resulted in the infection of the surgeon with the expectorated matter and the consequent loss of his eyesight or even his life, and people suffering from other infective conditions have been known to give their disease to their nurses or medical attendants by spitting in their faces. Medical men in the past have been content to take the risk of such occurrences or to safeguard themselves by wearing a gauze mask, but in certain instances a further protection is undoubtedly desirable, and this has been recently supplied by Messrs. Garrould in the form of a light aluminium mask with a glass window which can easily be removed for sterilisation. The apparatus, which



is known as the zymotic face protector, is affixed to the head by a pad and forehead strap, as if it were a laryngoscope, and it affords an efficient protection to eyes, nose, and mouth. We may add that it would be well for the surgeon not to assume the mask until the patient is anæsthetised, as its appearance would be somewhat formidable to a sensitive child. It can be obtained from Messrs. Garrould's, hospital contractors, 150, Edgware-road, London, W.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

ROYAL SOCIETY OF MEDICINE, 20, Hanover-square, W.

TUESDAY.

PATHOLOGICAL SECTION (Hon. Secretaries—Leonard S. Dudgeon, C. Bolton, M.D.): at 8.30 P.M.

Presidential Address:

Dr. F. W. Mott, F.R.S.: The Present Position of the Neurone Doctrine in Relation to Neuro-pathology.

Mr. S. G. Shattock: Rhabdo Myoma of Urinary Bladder.

Mr. J. Burton Cleland: A Note on Eosinophile Cells in the Exudate from Tick-bites on a Horse.

THURSDAY.

DERMATOLOGICAL SECTION (Hon. Secretaries—E. G. Graham Little, H. G. Adamson): at 5 P.M.

Dr. J. M. H. MacLeod: "Cystic Rodent Ulcer" treated by Radium.

Dr. H. G. Adamson: (1) Small Follicular Syphilide; (2) Multiple Scars simulating Leucodermia Syphilitica.
And other Cases.

FRIDAY.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN (Hon. Secretaries—E. I. Spriggs, M.D., J. P. Lockhart Mummery, F.R.C.S., J. T. Leon, M.D.): at 4.30 P.M.

Cases:

Dr. A. Manuel: Two Cases of Anterior Poliomyelitis involving the Four Limbs.

Dr. A. P. Beddard: A Case of Macroglossia.
And other cases.

Specimens:

Dr. F. W. Higgs: Lympho-sarcomatosis.

Dr. A. C. D. Firth and Dr. E. I. Spriggs: Pulmonary Stenosis.

Papers:

Dr. A. Dingwall-Fordyce: Notes on the Pathology of some Liver Conditions in Childhood, with a Report of Three Cases.

Dr. J. Walter Carr: Case of Pneumococcal Infection in an Infant simulating Generalised Tuberculosis.

EPIDEMIOLOGICAL SECTION (Hon. Secretaries—W. H. Hamer, G. S. Buchanan): at 8.30 P.M.

Presidential Address:

Dr. James Niven: The Relation of Poverty to Disease.

N.B.—Fellows of the Society are entitled to attend and to speak at all Meetings.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM, 11, Chandos-street, Cavendish-square, W.

THURSDAY.—8 P.M., Card Specimens by Mr. B. Harman, Mr. R. Batten, Mr. B. James, Mr. J. H. Fisher, &c. 8.30 P.M., The President (Dr. G. A. Berry): Introductory Address. Mr. P. Smith: (1) A Note on the Making of Pedigree Charts; (2) A Pedigree of Congenital Discoid Cataract.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

MONDAY.—5 P.M., Prof. S. G. Shattock: Osteoma. (Museum Demonstration.)

FRIDAY.—5 P.M., Prof. A. Keith: Specimens illustrating Various Forms of Congenital and Acquired Diverticula of the Alimentary Canal. (Museum Demonstration.)

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. J. H. Sequeira: Clinique (Skin). 5.15 P.M., Lecture:—Dr. J. Collier: Functional Paralysis.

TUESDAY.—4 P.M., Dr. H. Campbell: Clinique (Medical). 5.15 P.M., Lecture:—Dr. T. Eden: Malignant Ovarian Tumours.

WEDNESDAY.—4 P.M., Mr. J. Cantlie: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. W. H. B. Stoddart: The Prognosis of Functional Nervous Disorders.

THURSDAY.—4 P.M., Sir Jonathan Hutchinson: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. G. Carpenter: Heart Disease in Children.

FRIDAY.—4 P.M., Mr. S. Spicer: Clinique (Ear, Nose, and Throat).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Dunn: Diseases of the Eyes. 2.30 P.M., Operations. 5 P.M., Lecture:—Mr. Pardoe: Undue Mobility of the Kidneys and its Consequences.

TUESDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 12.15 P.M., Lecture:—Dr. Pritchard: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Operations. Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Saunders: Clinical Examination of Severe Cases of Gastric Disorder (continued)—Examination of Gastric Contents.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Diseases of the Throat, Nose, and Ear. 12.15 P.M., Lecture:—Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. B. Harman: Diseases of the Eyes. 2.30 P.M., Operations. Dr. D. Robinson: Diseases of Women. 5 P.M., Lecture:—Dr. Beddard: Medicine.

THURSDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 12 noon, Pathological Demonstration:—Dr. Bernstein. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Dunn: Diseases of the Eyes. 2.30 P.M., Operations. 5 P.M., Lecture:—Dr. G. Stewart: Injuries to Nerves.

FRIDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. Medical Registrar: Demonstration of Cases in the Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Operations. Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Abraham: Cases of Skin Diseases.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Mr. B. Harman: Diseases of the Eyes. Dr. Davis: Diseases of the Throat, Nose, and Ear. 12.15 P.M., Lecture:—Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. 2.30 P.M., Operations.

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—2 P.M., Operations. 2.15 P.M., Sir Dyce Duckworth Medicine. 3.15 P.M., Mr. Turner: Surgery. 4 P.M., Mr. R. Lake: Ear and Throat. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.

TUESDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Wells: Medicine. 3.15 P.M., Mr. Carless: Surgery. 4 P.M., Sir M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin. 3.15 P.M., Special Lecture:—Mr. Carless: Stone in the Kidney.

WEDNESDAY.—2 P.M., Operations. 2.15 P.M., Dr. P. Taylor: Medicine. 3.30 P.M., Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

THURSDAY.—2 P.M., Operations. 2.15 P.M., Dr. G. Rankin: Medicine. 3.15 P.M., Sir W. Bennett: Surgery. 4 P.M., Dr. Sale-Barker: Radiography. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.

FRIDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Bradford: Medicine. 3.15 P.M., Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin. 2.15 P.M., Special Lecture:—Dr. R. Bradford: Jaundice.

SATURDAY.—2 P.M., Operations. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10 A.M., Surgical Out-patient (Mr. H. Evans). 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. H. W. Carson). 4.30 P.M., Medical In-patient (Dr. A. J. Whiting).

TUESDAY.—Clinic: 10 A.M., Medical Out-patient (Dr. A. G. Auld). 2.30 P.M., Operations (Mr. H. W. Carson). Clinics:—Gynæcological (Dr. A. E. Giles). Surgical (Mr. W. Edmunds); 4.30 P.M., Demonstration:—Dr. G. P. Chappel: Selected Medical Cases.

WEDNESDAY.—Clinics:—2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks). 3 P.M., X Rays (Dr. H. Pirie).

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical Out-patient (Mr. H. W. Carson). 3 P.M., Medical In-patient (Dr. G. P. Chappel).

FRIDAY.—10 A.M., Clinic:—Surgical Out-patient (Mr. H. Evans). 2.30 P.M., Operations (Mr. W. Edmunds). Clinics:—Medical Out-patient (Dr. A. G. Auld); Eye (Mr. R. P. Brooks); Skin (Dr. G. N. Meachen). 3 P.M., Medical In-patient (Dr. R. M. Leslie). 4.30 P.M., Lecture:—Mr. R. P. Brooks: Squint.

WEST-END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, 73, Welbeck-street, W.

MONDAY.—3 P.M., Clinical Demonstration: Dr. H. Campbell.
TUESDAY.—5 P.M., Clinical Demonstration:—Dr. J. Mackenzie.
WEDNESDAY.—3 P.M., Clinical Demonstration:—Dr. F. Palmer.
THURSDAY.—3 P.M., Clinical Demonstration:—Dr. T. D. Savill.
FRIDAY.—2 P.M., Clinical Demonstration:—Dr. P. Stewart. 5.30 P.M., Clinical Demonstration: Dr. E. Macnamara.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.

TUESDAY AND FRIDAY.—3.45 P.M., Lecture:—Mr. C. Nourse: Middle Ear Labyrinth.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, Leicester-square, W.C.

THURSDAY.—6 P.M., Chesterfield Lecture:—Bullous and Vesicular Eruptions (continued)—V., Herpes; VI., Zoster; VII., Dermatitis Herpetiformis.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (18th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynecological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.).

TUESDAY (19th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College 2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (20th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan 9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (21st).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynecological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynecological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (22nd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.) Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor 9 A.M., Major, 2 P.M.).

SATURDAY (23rd).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

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Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Oct. 14th, 1909.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Oct. 8	29·57	S.W.	0·27	102	65	55	54	56	Cloudy
,, 9	30·27	W.	0·01	97	62	45	45	47	Fine
,, 10	30·09	S.		101	63	42	48	62	Cloudy
,, 11	29·83	S.W.	0·13	102	66	59	56	59	Cloudy
,, 12	29 83	S.W.	0 14	105	63	52	51	53	Fine
,, 13	29·69	S.W.		78	61	53	57	60	Cloudy
,, 14	29 99	S.W.	0 27	105	61	47	48	51	Fine

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